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उसके हिस्से
(पहला पुनरीक्षण)

**Glossary of Terms for Valves and
their Parts**
**Part 1 Screw-Down Stop, Check and
Gate Valves and their Parts**
(*First Revision*)

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FOREWORD

This Indian Standard (Part 1) (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Chemical Engineering Plants and Related Equipment Sectional Committee had been approved by the Mechanical Engineering Division Council.

This glossary of terms, has been prepared for the guidance of manufacturers and users of valves to assist them in the correct interpretation of the common terms used in the valve industry and trade. This part deals with screw-down stop, check and gate valves and their parts.

A three-digit number has been assigned to each term in this glossary. The first digit represents the number of the section under which the term comes and the last two digits represent the serial number of the term.

Figures are given after the definitions solely for the purpose of identifying the various parts of the different types of valves illustrated. The illustrations are merely examples and the purpose is not to indicate specific designs of components to which the definitions are applicable. The names of parts given in the keys to figures show the reference number used in the figures.

This standard was first published in 1969. The present revision has been taken up with a view to incorporating the modifications found necessary as a result of experience gained on the use of this standard. Also, in this revision, the standard has been brought into the latest style and format of Indian Standard, and references to Indian Standards, wherever applicable have been updated.

This standard on glossary of terms for valves and their parts is one of the series of standards on Socketing. Other parts of this standard are :

Part 2 Plug valves and cocks and their parts

Part 3 Butterfly valves

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

GLOSSARY OF TERMS FOR VALVES AND THEIR PARTS

PART 1 SCREW-DOWN STOP, CHECK AND GATE VALVES AND THEIR PARTS

*(First Revision)***1 SCOPE**

1.1 This standard defines types of, and parts for, screw-down stop, check, and gate valves.

1.2 This standard does not apply to draw-off taps or stop taps or their parts.

2 TERMINOLOGY**SECTION 1 SCREW-DOWN STOP VALVES**

<i>Sl No.</i>	<i>Ref. No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
i)	101	Screw-Down stop valve	A valve in which the disk is lifted from and lowered on to the body seat by a stem whose axis is perpendicular to the face of the body seat. Screw down stop valves may be inside screw type or outside screw type:
		a) Inside screw	Where the actuating thread of the stem is engaged within the bonnet.
		b) Outside screw	Where the actuating thread of the stem is exterior to the bonnet.
Types of Screw-Down stop valves			
ii)	102	Globe valve	A valve having generally a spherical body in which the body ends are in line with each other and in which the axis of the stem is at right angles to that of the body ends.
iii)	103	Oblique valve	A valve having generally a spherical body in which the body ends are in line with each other and in which the axis of the stem is oblique to that of the body ends.
iv)	104	Angle valve	A valve having generally a spherical body in which the body ends are at right angles to each other and in which the axis of the stem is in line with that of one body end.
v)	105	Needle valve	A form of screw-down stop valve, generally restricted to small sizes, which may have the body ends in line or at right angles with each other or may be of the oblique type (<i>see</i> 103). The disk is in the form of a needle point.
vi)	106	Other types	Those are usually described by reference to the disposition of the body ends in relation to each other, such as elbow valves, three-way or tee valves. The component parts of these types of valves are identical with those for the types referred to in 102, 103 and 104.
Screw-Down stop valve parts			
vii)	107	Trim	A collective term relating to the materials of certain major internal components which are directly affected by the fluid or by the action of the flow thereof through the valve. Trim relates only to the following components: <ul style="list-style-type: none"> a) Disk or disk facing ring; b) Body seat ring (or body seat facing); and c) Stem.

<i>Sl No.</i>	<i>Ref. No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
			Where the above components are made of materials of similar composition but not necessarily with similar mechanical properties, the valve is referred to as having a 'trim' of that specific material for example '13 percent chrome trim'. Where the components are of dissimilar materials, the material of each is specified separately.
viii)	108	Body	The main part of the valve in which the flow of fluid is controlled.
		a) Body end port	The inlet or outlet opening at the end of the valve body.
		b) Body end	That part of the body which connects the valve to the plant or installation of which the valve forms a part.
		c) Body/Bonnet connection	The connection of the body to the bonnet generally of the bolted, screwed, or union type.
		d) Body/Bonnet flange	The flange on the body of a bolted flange type of body/bonnet connection.
		e) Body end neck	That part of the body between the body end and the main portion of the body.
		f) Body/Bonnet fleck	That part of the body between the body/bonnet connection and the main portion of the body.
		g) Body dividing wall	The integral part of the body which separates the inlet and outlet ports and on which the body seat is formed, or in which the body seat ring is secured.
		h) Body seat	A machined seat with which the disk face makes contact when the valve is closed. When the body seat is formed in the body, a valve is described as having an 'integral seat'. When the body seat is formed on the body seat ring, a valve is described as having a 'renewable seat'.
		j) Body boss	A boss formed on the exterior of the body to provide sufficient metal to permit a tapped connection.
		k) Drain boss	A boss as described in 108 (j) to provide for a tapped connection for drainage purposes.
		m) Body tapping	A tapping in the body to permit an external connection.
ix)	109	Body components	Those parts which are associated, but not integral with the body.
		a) Body seat ring	The part of a renewable seated valve made separate from the body and secured in it, on which the body seat is machined.
		b) Body seat facing	A deposit, on the body or body seat ring of material different from them, on which the body seat is machined.
		c) Body plug	A plug for sealing a tapped hole in a body boss or drain boss [see 108 (j) and 108 (k)]
x)	110	Bonnet	That part of the valve, attached to the body, which carries the operating mechanism.
		a) Bonnet flange	The flange on the bonnet of a bolted type of body/bonnet connection.
		b) Back seat	A machined seat, which may be on the bonnet or on a part separate from and secured in the bonnet, which makes contact with the back face [see 115 (g)] when the valve is fully open.

<i>Sl No.</i>	<i>Ref. No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
xi)	111	c) Bonnet condensing chamber	An annular space in the bonnet around the stem below the stuffing box [<i>see also</i> 117 (a)]
		d) Bonnet pressure relief tapping	A tapping on the side of the bonnet into the condensing chamber.
		e) Bonnet pressure relief boss	A boss on the side of the bonnet to provide sufficient metal to permit the tapping referred to in 110 (d).
		Bonnet components	Those parts which are associated, but not integral, with the bonnet.
		a) Bonnet bolting	Comprises bolts, stud bolts, studs, set screws, and nuts used for the body/bonnet connection.
		b) Bonnet gasket	A component for effecting a fluid-tight joint in a body/bonnet connection.
		c) Bonnet ring joint	A gasket in the form of a metal ring which engages with grooves in the mating flanges of the body/bonnet connection.
		d) Bonnet union nut	A nut or ring securing the bonnet to the body where the body/bonnet connection is of the union type [<i>see</i> 108 (c)].
		e) Back seat bushing	That part, separate from and secured in the bonnet, on which the back seat is machined.
xii)	112	f) Bonnet pressure relief plug	A plug fitted in the tapping referred to in 110 (e).
		g) Bonnet locking device	A screw or other device which prevents a screw or union type bonnet from unscrewing.
		Yoke	That exterior part of an outside screw valve, integral with or separate from the bonnet, in which the actuating thread of the stem engages, either directly or through a yoke bush.
		a) Yoke bush	A bush secured in the yoke and threaded internally to engage the actuating thread of the stem.
		b) Yoke bush nut	A nut which secures the yoke bush in the yoke.
		c) Yoke bush key or locking screw	A locking device which prevents rotation of the yoke bush in the yoke.
		d) Yoke bolting	Comprises bolts, stud bolts, studs, set screws, and nuts used for securing the yoke to the bonnet.
		Bridge	(An alternative arrangement to yoke). The exterior part of an outside screw valve, connected to the bonnet by pillars and in which the actuating thread of the stem engages, either directly or through a bush.
		a) Pillars	Distance pieces connecting the bridge to the bonnet.
xiii)	113	b) Pillar nuts	Nuts used to secure the pillars to the bridge or to the bonnet.
		c) Bridge bush	A bush secured in the bridge and threaded internally to engage the actuating thread of the stem.
		d) Bridge bush nut	A nut which secures the bridge bush in the bridge.
		e) Bridge bush key or locking screw	A locking device which prevents rotation of the bridge bush in the bridge.
		Stem or spindle	That component on which the actuating thread is formed and by which control of the disk is affected.
		a) Stem button	The formed end of the stem to which the disk or disk holder is attached.
xiv)	114		

<i>Sl No.</i>	<i>Ref. No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
xv)	115	Disk	The generic term for the closing component, irrespective of its shape, on which the disk face is formed, or to which the disk facing ring is secured. For needle valves, the disk may be integral with the stem.
		a) Disk holder	That part which holds a renewable type of disk.
		b) Disk face	A machined face which makes contact with the body seat when the valve is closed. It may be machined on the disk itself or on the disk facing ring.
		c) Disk facing ring	A ring of different material from the disk and permanently secured to it, on which the disk face is machined. NOTE — The term 'permanent secured' refers to a ring which is separate and secured in such a way that it can only be removed by machining, such as a weld deposited ring.
		d) Disk retaining nut	A nut which retains a renewable type disk in the disk holder.
		e) Disk stem nut	A nut which secures the stem button or stem end collar in the disk or disk holder.
		f) Disk stem nut lock washer	A device for locking the disk stem nut.
		g) Back face	A machined face on the disk, disk holder, disk stem nut, or stem, which makes contact with the back seat [<i>see</i> 110 (b)] when the valve is fully open.
		h) Disk guide pin	That part of the disk or disk holder which, when in the form of a pin, engages with the disk guide.
		j) Disk guide wings	That part of the disk, disk holder or disk retaining nut which, when in the form of wings, guides the disk to the body seat.
		k) Disk thrust plate	A plate inserted between the stem end and the disk or disk holder to take the thrust of the stem end.
		m) Disk guide	That part, integral with or separate from the body, bonnet, or body seating, in which the disk or disk holder is guided.
xvi)	116	Hand wheel	The wheel by which the valve is manually operated.
		a) Hand wheel fixing	The nut, set screw washer, key, feather, or other means used to secure the hand wheel to the stem.
xvii)	117	Stuffing box	The part of the bonnet which provides an annular space around the stem to contain the gland and the gland packing.
		a) Lantern ring	A spacing ring inserted in the stuffing box to form a pressure relief or condensing chamber [<i>see also</i> 110 (c)].
xviii)	118	Gland	A part which retains and forms a means of compressing the packing. Glands are usually of the screwed or bolted type, of one-piece or two-piece design.
		a) Screwed gland	The type of gland which is adjusted by a nut which engages the stuffing.
		b) Gland nut	The nut of a screwed gland by which pressure is transmitted to the gland.
		c) Bolted gland	The type of gland which is adjusted by bolts, studs, set screws, etc, attached to the bonnet or the stuffing box.
		d) One-Piece gland	A bolted design in which the gland is integral with the gland flange.
		e) Two-Piece gland	A bolted design in which the gland is separate from the gland flange, generally having a self-aligning feature.

<i>Sl No.</i>	<i>Ref. No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
		f) Gland flange	The flange of a bolted one-piece or two-piece gland by which pressure is transmitted to the gland.
		g) Gland bush	A bush which is inserted in a gland.
		h) Gland bolting	Comprises bolts, eye-bolts, stud bolts, studs, set screws, and nuts by which pressure is applied to bolted glands.
		j) Packing nut	(Usually associated only with small relatively low-pressure valves). A nut similar to that in 118 (b) but which itself contains and compresses the packing in cases where a gland stuffing box is not used.
		k) Gland packaging	Material inserted into the stuffing box or packing nut to prevent leakage of fluid.

Key to Fig. 1 to Fig. 5 For Screw-Down Stop Valves Arranged in Order Part References

<i>Sl No.</i>	<i>Part Ref.</i>	<i>Name of Part</i>	<i>Ref No. of Term</i>	<i>See Fig. No.</i>
(1)	(2)	(3)	(4)	(5)
i)	1	Body	108	1, 2, 3, 4, 5
ii)	2	Bonnet (union type)	110 and 108 (c)	1
iii)	3	Bonnet (screwed type)	110 and 108 (c)	1
iv)	4	Bonnet (bolted type)	110 and 108 (c)	2, 3, 4, 5
v)	5	Stem (inside screw type)	114 and 101 (a)	1
vi)	6	Stem (out screw type)	114 and 101 (a)	2, 3, 4, 5
vii)	6A	Stem button	114 (a)	1, 2, 3, 4, 5
viii)	7	Disk (renewable type)	115	1
ix)	8	Disk (plug type)	115	1, 5
x)	9	Disk (ball or spherical type)	115	2, 3, 4
xi)	10	Disk (flat face type)	115	2
xii)	10A	Disk facing ring (rolled in type)	115 (c)	5
xiii)	11	Disk holder	115 (a)	1
xiv)	12	Disk stem nut	115 (c)	1, 2, 3, 4, 5
xv)	13	Disk stem nut lock washer	115 (f)	1
xvi)	14	Disk thrust plate	115 (k)	2, 4, 5
xvii)	15	Disk retaining nut	115 (d)	1
xviii)	16	Disk guide pin	115 (h)	1, 5
xix)	17	Body seat ring, shoulder seated	109 (a)	1, 2, 4
xx)	18	Body seat ring, bottom seated	109 (a)	5
xxi)	19	Bonnet union nut	111 (d)	1
xxii)	20	Bonnet bolt	111 (a)	2
xxiii)	21	Bonnet bolt nut	111 (a)	2
xxiv)	22	Bonnet stud	111 (a)	2
xxv)	23	Bonnet stud nut	111 (a)	2
xxvi)	24	Bonnet flange	110 (a)	4, 5
xxvii)	24A	Body/bonnet flange	108 (d)	4, 5
xxviii)	25	Bonnet stud bolt nut	111 (a)	4, 5
xxix)	26	Bonnet stud bolt	111 (a)	4, 5

<i>Sl No.</i>	<i>Part Ref.</i>	<i>Name of Part</i>	<i>Ref. No. of Term</i>	<i>See Fig. No.</i>
(1)	(2)	(3)	(4)	(5)
xxx)	27	Bonnet gasket	111 (b)	2, 3, 4, 5
xxxii)	27A	Bonnet ring joint	111 (c)	4
xxxiii)	28	Gland packing	118 (k)	1, 2, 3, 4, 5
xxxiv)	29	Gland nut	118 (b)	1
xxxv)	30	Gland	118	1, 2, 4
xxxvi)	31	Gland flange	118 (f)	2, 4
xxxvii)	32	One piece gland	118 (d)	2, 3, 4, 5
xxxviii)	33	Disk guide wings	115 (j)	3
xxxix)	34	Gland bush	118 (g)	3, 5
xl)	35	Gland bolt	118 (h)	2
xli)	36	Gland bolt nut	118 (h)	2
xlii)	37	Gland stud	118 (h)	2
xliii)	38	Gland stud nut	118 (h)	2
xliv)	39	Gland stud bolt	118 (h)	4, 5
xlvi)	40	Gland eye bolt	118 (h)	4
xlvi)	41	Yoke	112	2, 4, 5
xlvi)	42	Yoke bush	112 (a)	2, 4, 5
xlvi)	43	Yoke bush nut	112 (b)	4, 5
xlvi)	43A	Yoke bush key	112 (c)	4
xlvi)	44	Gland stud bolt nut	118 (b)	4, 5
li)	45	Bridge	113	3
li)	46	Bridge bush	113 (c)	3
lii)	47	Bridge bush locking screw	113 (e)	3
liii)	48	Pillar	113 (a)	3
liv)	49	Pillar nut	113 (b)	3
lv)	50	Hand wheel	116	1, 2, 3, 4, 5
lvi)	51	Hand wheel nut	116 (a)	1, 2, 3, 4, 5
lvii)	52	Hand wheel key	116 (a)	2
lviii)	53	Hand wheel washer	116 (a)	2, 3
lix)	54	Back seat bushing	111 (e)	3, 4, 5
lx)	54A	Back seat	110 (b)	2, 4, 5
lxi)	55	Back face	115 (g)	1, 2, 4, 5
lxii)	56	Lantern ring	117 (a)	4
lxiii)	57	Drain boss	108 (k)	4, 5
lxiv)	58	Body end	108 (b)	1, 2, 3, 4, 5
lxv)	59	Bonnet condensing chamber	110 (c)	4
lxvi)	60	Bonnet pressure relief boss	110 (e)	4
lxvii)	61	Body dividing wall	108 (g)	1, 2, 3, 4, 5
lxviii)	62	Body neck	108 (e)	1, 2, 3, 4, 5
lxix)	63	Body port	108 (a)	1, 3, 4
lxx)	64	Body/bonnet neck	108 (f)	1, 2, 3, 4, 5
lxxi)	65	Disk guide	115 (m)	1, 5

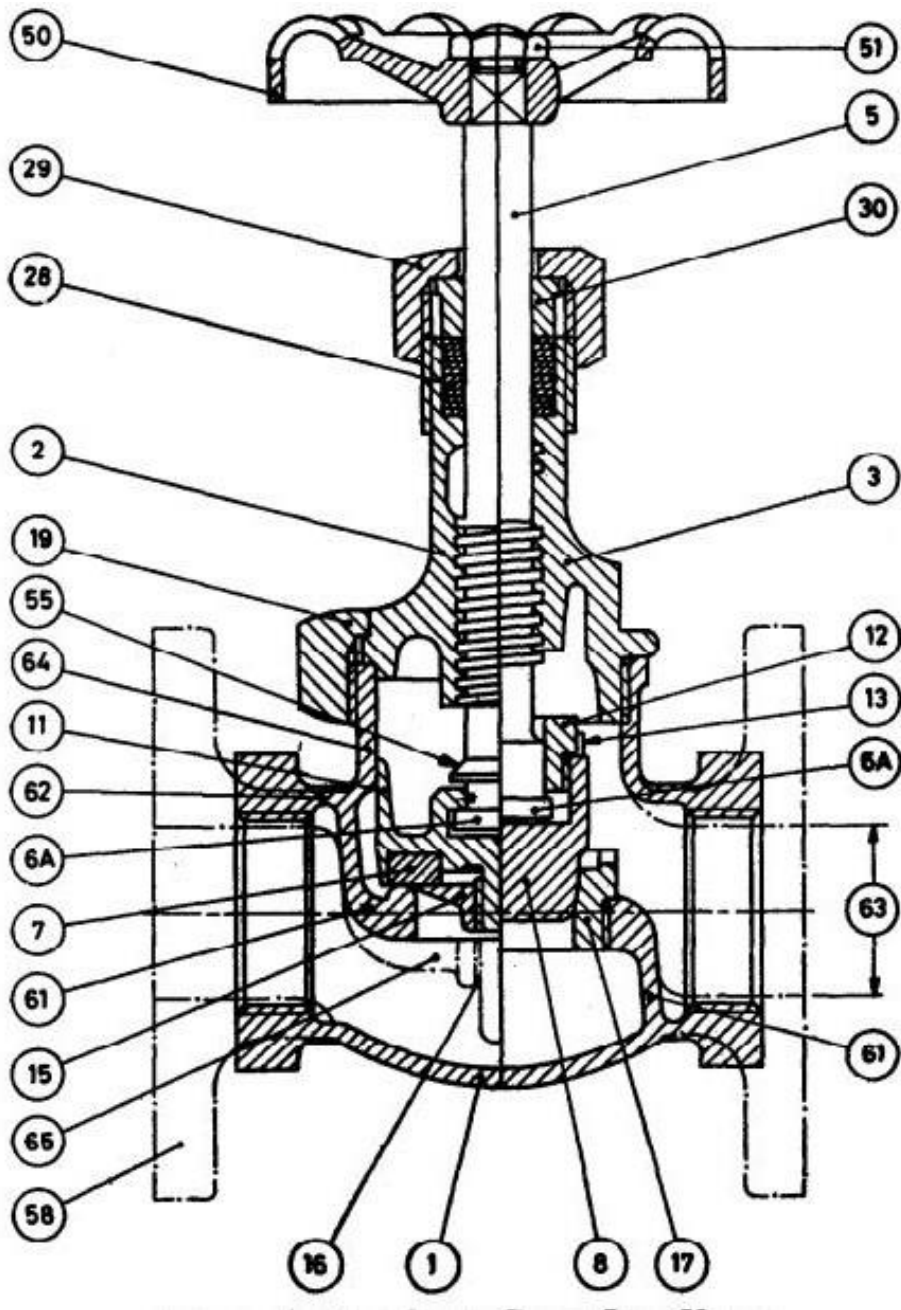


FIG. 1 TYPICAL SCREW-DOWN STOP VALVE

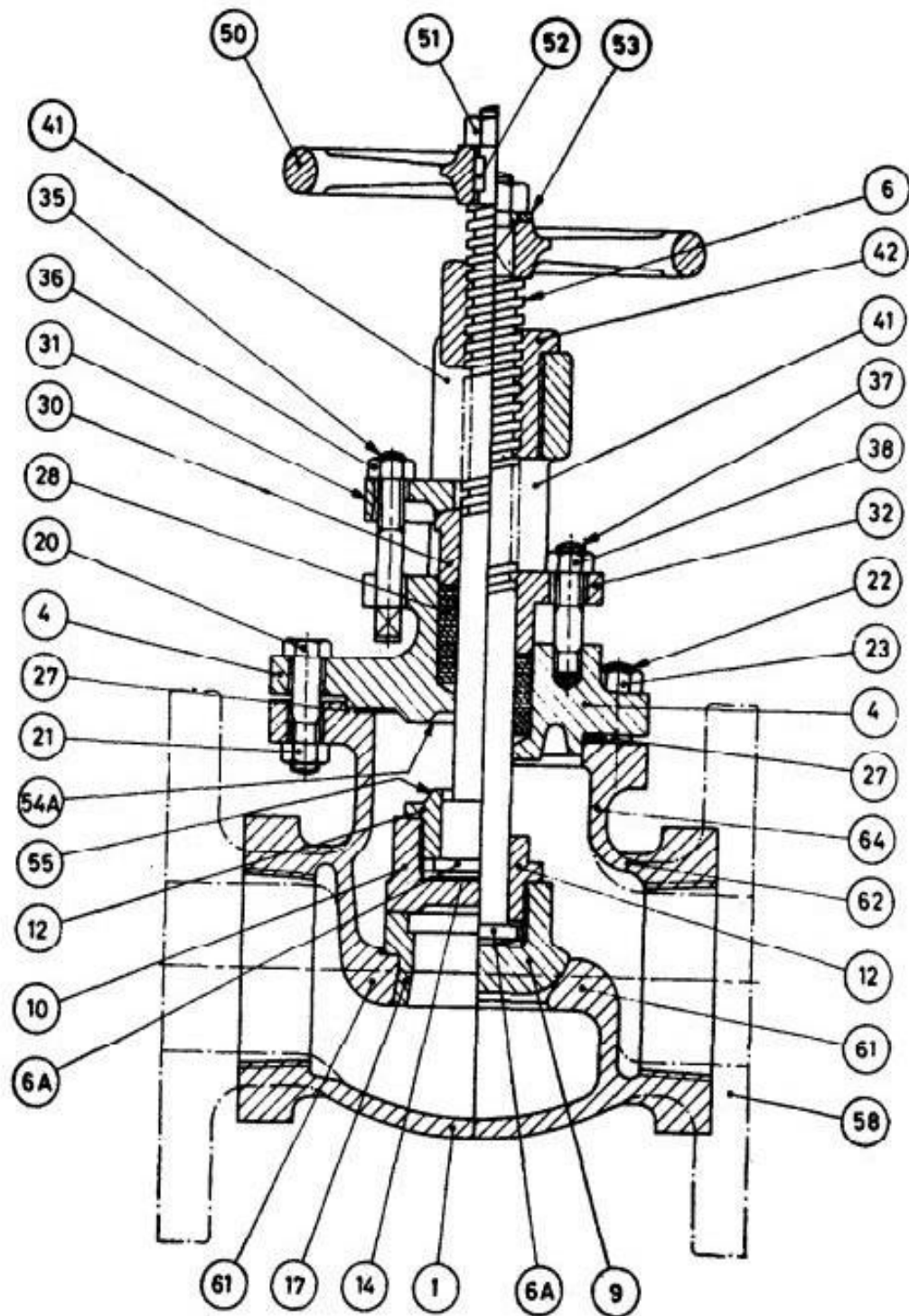


FIG. 2 TYPICAL SCREW-DOWN STOP VALVE

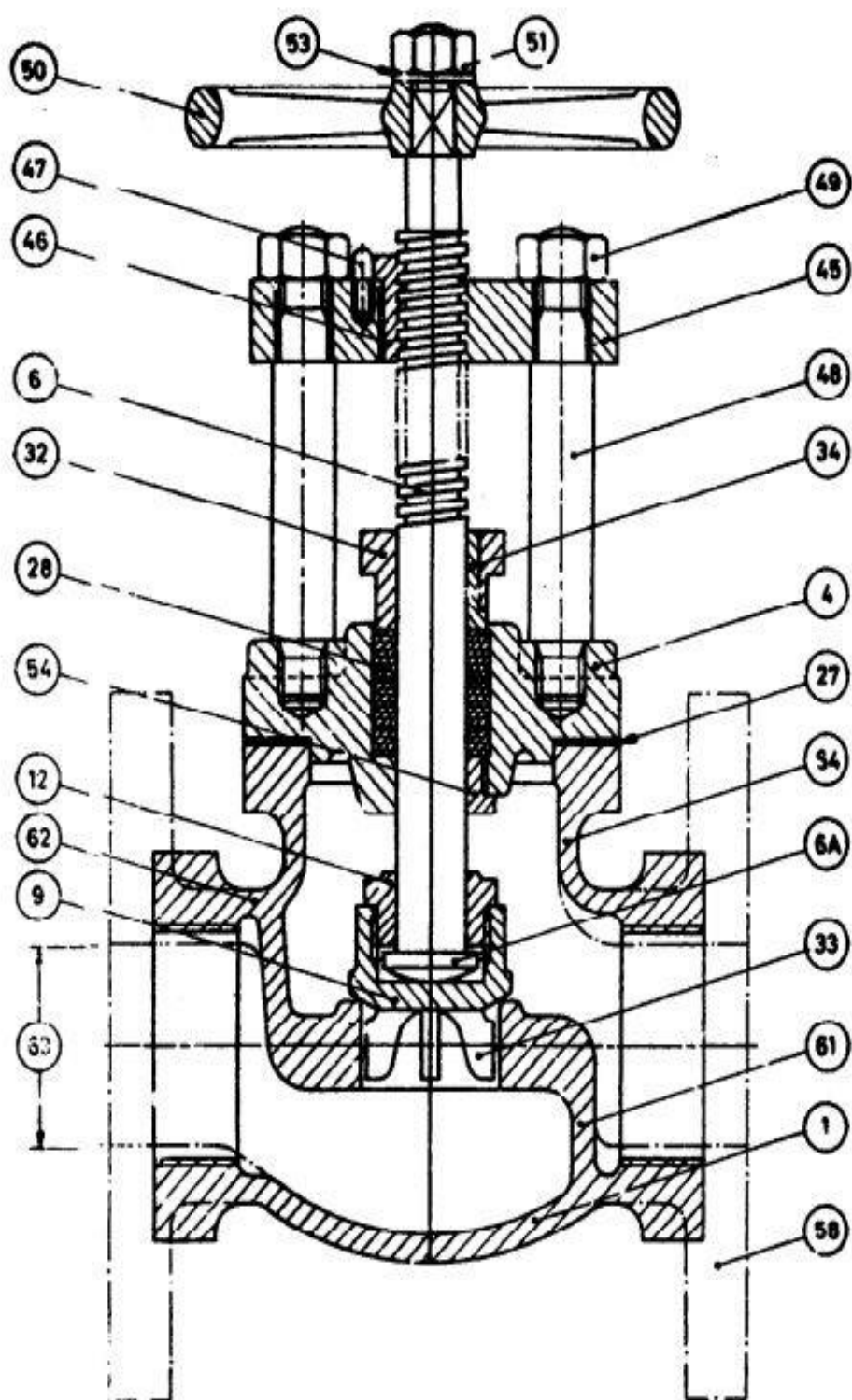


FIG. 3 TYPICAL SCREW-DOWN STOP VALVE

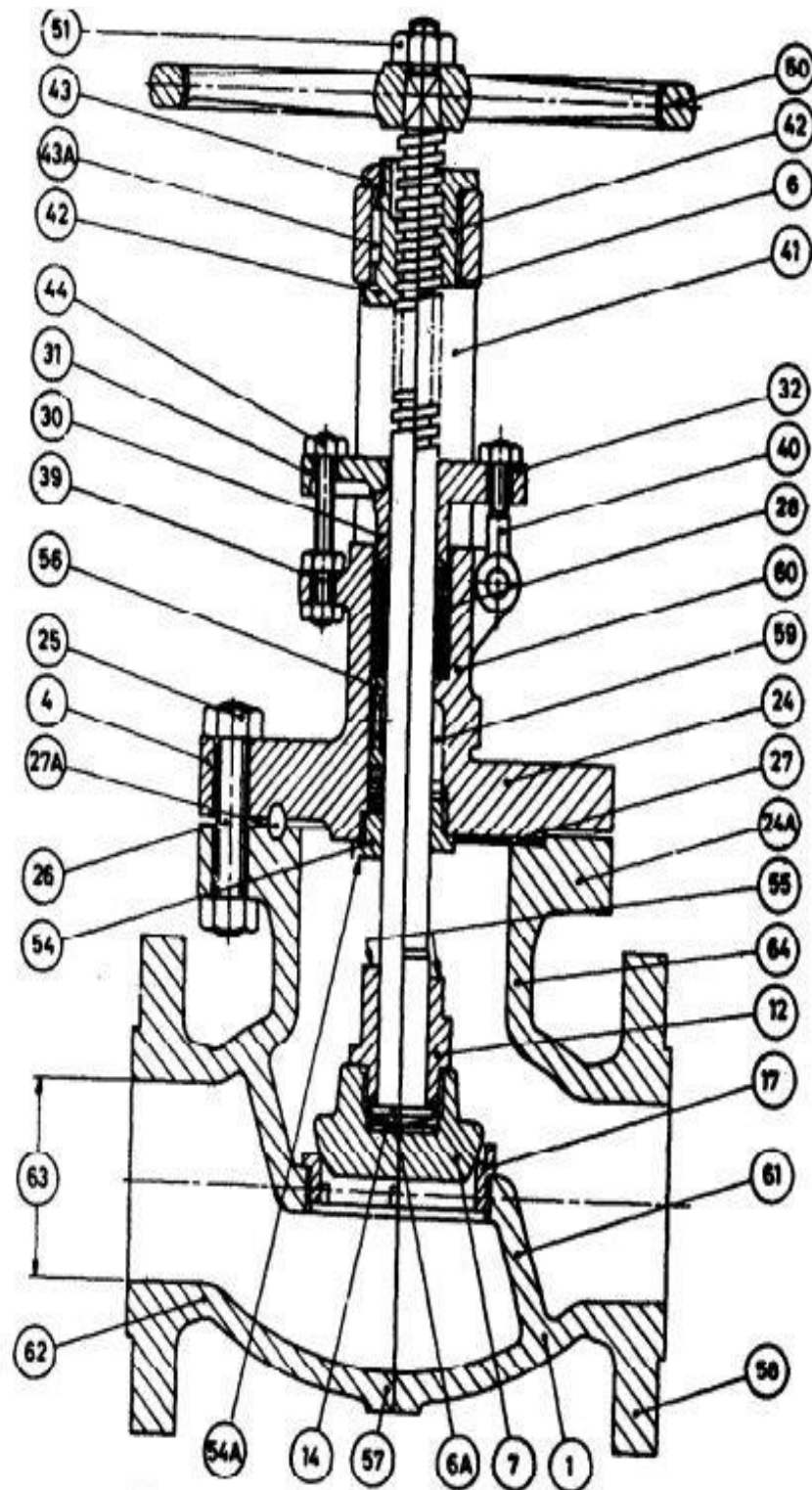


FIG. 4 TYPICAL SCREW-DOWN STOP VALVE

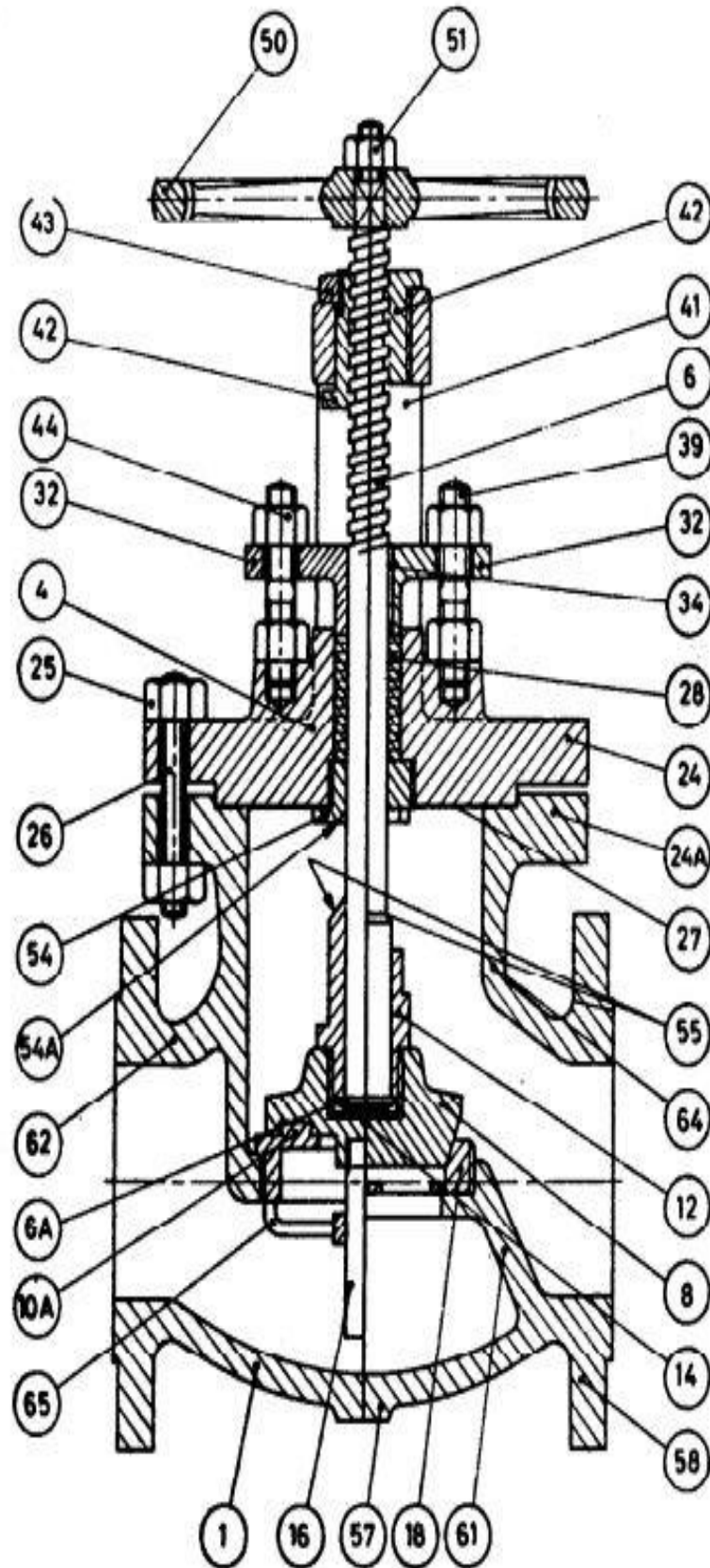


FIG. 5 TYPICAL SCREW-DOWN STOP VALVE

SECTION 2 CHECK VALVES

<i>Sl No.</i>	<i>Ref. No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
i)	201	Check valve	A valve which prevents reversal of flow by means of the check mechanism, the valve being opened by the flow of fluid and closed by the weight of the check mechanism when the flow ceases, or by back pressure. Where positive closing is required in any position, springs may also be used.
Check Valve Patterns			
ii)	202	Horizontal pattern	In which the body ends are in with each other, for installation in a horizontal position.
iii)	203	Vertical pattern	In which the body ends are in line with each other, for installation in a vertical position.
iv)	204	Angle pattern	In which the body ends are at right angles to each other, for installation at a junction between vertical and horizontal positions.
Types of Check Valve			
v)	205	Swing type	<p>A check valve in which the check mechanism incorporates a disk which swings on a hinge. It may be lever and weight mounted to assist or balance the disk. Lever and weight loaded swing check valves are described as follows:</p> <ol style="list-style-type: none"> Where lever and weight are mounted to assist disk in closing where the valve is installed in horizontal lines where quick action is necessary to avoid sudden reversal of flow; Where lever and weight are mounted to balance disk when valve is installed in horizontal lines where disk is required to open under minimum of pressure; and Where lever and weight are mounted to assist disk in closing when valve is installed in vertical lines where quick action is necessary to avoid a sudden reversal of flow.
vi)	206	Lift type	<p>A check valve in which the check mechanism incorporates a disk, piston, or ball which lifts along an axis in line with the axis of the body seat. Lift type check valves are described, according to the type of check mechanism, as follows:</p> <ol style="list-style-type: none"> Disk check A check valve in which the check mechanism is, or incorporates a disk. Piston check A disk check valve in which is incorporated a dashpot, consisting of a piston and cylinder, which provides a cushioning effect during operation. Ball check A check valve in which the check mechanism is a ball. Spring loaded check A check valve in which the check mechanism is loaded with spring compression in order to provide a quick closure.
vii)	207	Screw-Down stop and check valve	<p>A check valve which incorporates a mechanism which can hold the disk in the closed position independently of the flow or, alternatively, may restrict the life of the disk.</p> <p>NOTE — Screw-down stop and check valves differ from globe valves only in that the disk is not attached to the stem. In some types, a dashpot and piston are incorporated with the disk, as in the piston</p>

<i>Sl No.</i>	<i>Ref No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
			type check valve. Therefore, the definitions of components and trim as given in Section 1 of this standard will apply, together with those definitions of components for the piston type check valve in this section, where applicable.
viii)	208	Foot valve	A check valve fitted to the bottom of a section pipe. A strainer is often fitted to this valve.
			Check Valve Parts
ix)	209	Trim	A collective term relating to the materials of certain major internal components which are directly affected by the fluid or by the action of the flow thereof through the valve. Trim relates only to the following components: Disk (or disk facing ring) or ball, piston (when integral with disk), body seat ring (or body seat facing) and hinge pin (for swing type). Where the above components are made in materials of similar mechanical properties, the valve is referred to as having a trim of that specific material for example '13 percent chrome trim'. Where the components are of dissimilar materials, of each is specified separately.
x)	210	Body	The main part of the valve in which the flow of fluid is controlled.
		a) Body end port	The inlet or outlet opening at the end of the valve body.
		b) Body end	That part of the body which connects the valve to the plant or installation of which the valve forms a part.
		c) Body/Cover connection	The connection of the body to the cover, generally of the bolted, screwed or union type.
		d) Body/Cover flange	The flange on the body of a bolted flange type of body/cover connection.
		e) Body end neck	The part of the body between the body end and the main portion of the body.
		f) Body/Cover neck	That part of the body between the body/cover connection and the main portion of the body.
		g) Body dividing wall	The integral part of the body of a lift type check valve which separates the inlet and outlet ports and on which the body seat is formed or in which the body seat ring is secured.
		h) Body seat	A machined seat with which the disk face or ball makes contact when the valve is closed. When the body seat is formed in the body, a valve is described as having an 'integral seat'. When the body seat is formed on the body seat ring, a valve is described as having a 'renewable seat'.
		j) Drain boss	A boss formed on the exterior of the body to provide for a tapped connection for drainage purposes.
		k) Hinge pin boss	A boss formed on the body of a swing check valve to accommodate the hinge pin and hinge pin plug.
		m) Body stop	A stop to limit the travel of the disk in a swing check valve. The stop may be integral with the body or cover, or maybe a separate component [see 211 (d)].
		n) Body tapping	A tapping in the body to permit an external connection.
xi)	211	Body components	Those parts which are associated, but not integral, with the body.
		a) Body seat ring	The part of a renewable seated valve made separate from the body and secured in it, on which the body seat is machined.

<i>Sl No.</i>	<i>Ref No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
xii)	212	b) Body seat facing	A deposit on the body or body seat ring of material different from them, on which the body seat is machined.
		c) Drain plug	A plug for sealing a tapped hole in a drain boss.
		d) Body stop plug	A plug fitted in the body to limit the travel of the disk in a swing check valve [see 210 (m)].
		e) Hinge pin plug	A plug fitted in the body to retain the hinge pin.
		Cover	That part which closes the body aperture through which access is obtained to the internal parts of the valve.
xiii)	213	a) Cover flange	The flange which connects a bolted cover to the body/cover flange.
		Cover components	Those parts which are associated, but not integral, with the cover.
		a) Cover bolting	Comprises bolts, stud bolts, studs, set screws, and nuts used for the body/cover connection.
		b) Cover gasket	A component for effecting a fluid-tight joint in a body/cover connection.
		c) Cover ring joint	A joint, in the form of a metal ring, which engages with grooves in the mating flanges of the body/cover connection.
xiv)	214	d) Cover union nut	A nut or ring securing the cover to the body where the body/cover connection is of the union type [see 210 (c)].
		Check mechanism	The term for the part or assembly of parts operated by the flow of fluid.
		a) Disk	The part of a swing, disk, or piston type of valve on which the disk face is formed or to which a disk facing ring is secured.
		1) Disk holder	That part which holds a renewable type of disk.
		2) Disk face	A machined face which makes contact with the body seat when the valve is closed. It may be machined on the disk itself or on the disk facing ring.
		3) Disk facing ring	A ring, of different material from the disk and permanently secured to it, on which the disk face is machined. <small>NOTE — The term 'permanently secured' refers to a ring which is separate and secured in such a way that it may only be removed by machining, such as a weld deposited ring.</small>
		4) Disk retaining nut	A nut which retains a renewable type of disk in the disk holder.
		5) Disk guide	That part, integral with or separate from the body, cover or body seat ring, in which the check mechanism is guided.
		6) Disk guide pin	That part of the check mechanism which, when in the form of a pin, engages with the disk guide.
		7) Disk guide wings	That part of the check mechanism which, when in the form of wings, guides the disk to the body seat.
		b) Piston	The part of the check mechanism of a piston check valve which works in the dashpot cylinder.
		1) Dashpot cylinder	That part of the check mechanism of a piston check valve in which the piston works.
		c) Ball	The spherical check mechanism of a ball check valve.
		1) Grid	That part of a vertical ball check valve which restricts the travel of the ball and through which the fluid passes.
		2) Ball guide	That part of a ball check valve, integral with or separate from the body, cover, or grid, in which the ball is guided.

<i>Sl No.</i>	<i>Ref No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
		d) Hinge	The part of parts of a swing check valve which enable the disk to swing.
		1) Hinge pin	The pin about which the disk of a swing check valve swings.
		e) Hinge/Disk connection	Comprises stud, nut, washer, and cotter pin which secure the hinge to the disk when the hinge is separate from the disk.
		f) Hinge/Hinge pin connection	A stud or key provided for fixing the hinge to hinge pin.
		g) Weight	Weight sliding on the outside lever which loads the disk.
		h) Outside lever	Lever connected to the hinge pin and on which the weight slides.
		j) Weight/Lever connection	Comprises locking screw and nut by which weight can be fixed on the lever at the desired position.
		k) Stuffing box	The part on the hinge pin boss which provides an annular space around the hinge pin to contain the gland and gland packing.
		m) Gland nut	A part which retains and forms a means of compressing the packing.

Key to Fig. 6 to Fig. 12 for Check Valves Arranged in Order of Part References

<i>Sl No.</i>	<i>Part Ref</i>	<i>Name of Part</i>	<i>Ref. No. of Term</i>	<i>See Fig. No.</i>
(1)	(2)	(3)	(4)	(5)
i)	1	Body	210	6, 7, 8, 9, 10, 11, 12
ii)	2	Body end port	210 (a)	6, 7, 9, 10, 11, 12
iii)	3	Body end	210 (b)	6, 7, 9, 10, 12
iv)	4	Body/cover flange	210 (d)	6, 7, 10,
v)	5	Body end neck	210 (e)	6, 7, 9, 10, 11
vi)	6	Drain boss	210 (j)	6, 7
vii)	7	Hinge pin boss	210 (k)	6, 7
viii)	8	Body stop	210 (m)	6, 7
ix)	9	Body seat ring	211 (a)	6, 7, 9, 10, 12
x)	10	Cover (bolted type)	212	6, 7, 10,
xi)	11	Cover flange	212 (a)	6, 7, 10,
xii)	12	Cover bolt (or stud, bolt, stud or set screw)	213 (a)	6, 7, 10,
xiii)	13	Cover bolt nut	213 (a)	6, 7, 10,
xiv)	14	Cover gasket	213 (b)	6, 7, 9, 10, 12
xv)	15	Cover ring joint	213 (c)	6, 7
xvi)	16	Disk	214 (a)	6, 7, 8, 9,
xvii)	17	Disk facing ring	214 (a) (3)	6, 7
xviii)	18	Hinge/disk connection	214 (e)	6, 7
xix)	19	Hinge	214 (d)	6, 7
xx)	20	Hinge pin	214 (d) (1)	6, 7
xxi)	21	Hinge pin plug	211 (e)	6
xxii)	22	Body dividing wall	210 (g)	8, 9, 10, 12
xxiii)	23	Cover union nut	213 (d)	8, 10, 11, 12

<i>Sl No.</i>	<i>Part Ref</i>	<i>Name of Part</i>	<i>Ref. No. of Term</i>	<i>See Fig. No.</i>
(1)	(2)	(3)	(4)	(5)
xxiv)	24	Disk holder	214 (a) (1)	8, 9
xxv)	25	Disk retaining nut	214 (a) (4)	9
xxvi)	26	Cover (screwed type)	212	7, 8, 9, 10, 11
xxvii)	27	Cover (union type)	212	8, 9, 10, 12
xxviii)	28	Disk guide pin	214 (a) (6)	8, 9
xxix)	29	Disk guide wings	214 (a) (7)	8, 9
xxx)	30	Disk guide	214 (a) (5)	9
xxxi)	31	Grid	214 (c) (1)	11
xxxii)	32	Piston	214 (b)	9
xxxiii)	33	Ball	214 (c)	10, 11
xxxiv)	34	Ball guide	214 (c) (2)	10, 11
xxxv)	35	Body/cover neck	210 (f)	7, 8, 9, 10, 12
xxxvi)	36	Hinge/hinge pin connection	214 (f)	7
xxxvii)	37	weight	214 (g)	7
xxxviii)	38	Outside lever	214 (h)	7
xxxix)	39	Weight lever connection	214 (j)	7
xl)	40	Gland nut	214 (m)	7

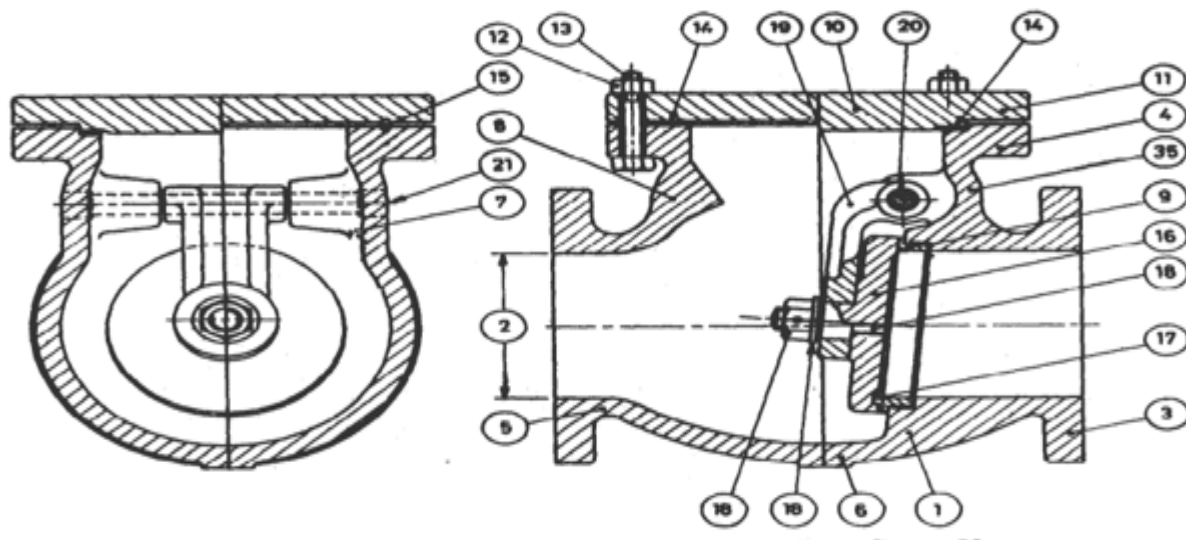


FIG. 6 HORIZONTAL OR VERTICAL PATTERN SWING TYPE CHECK VALVE

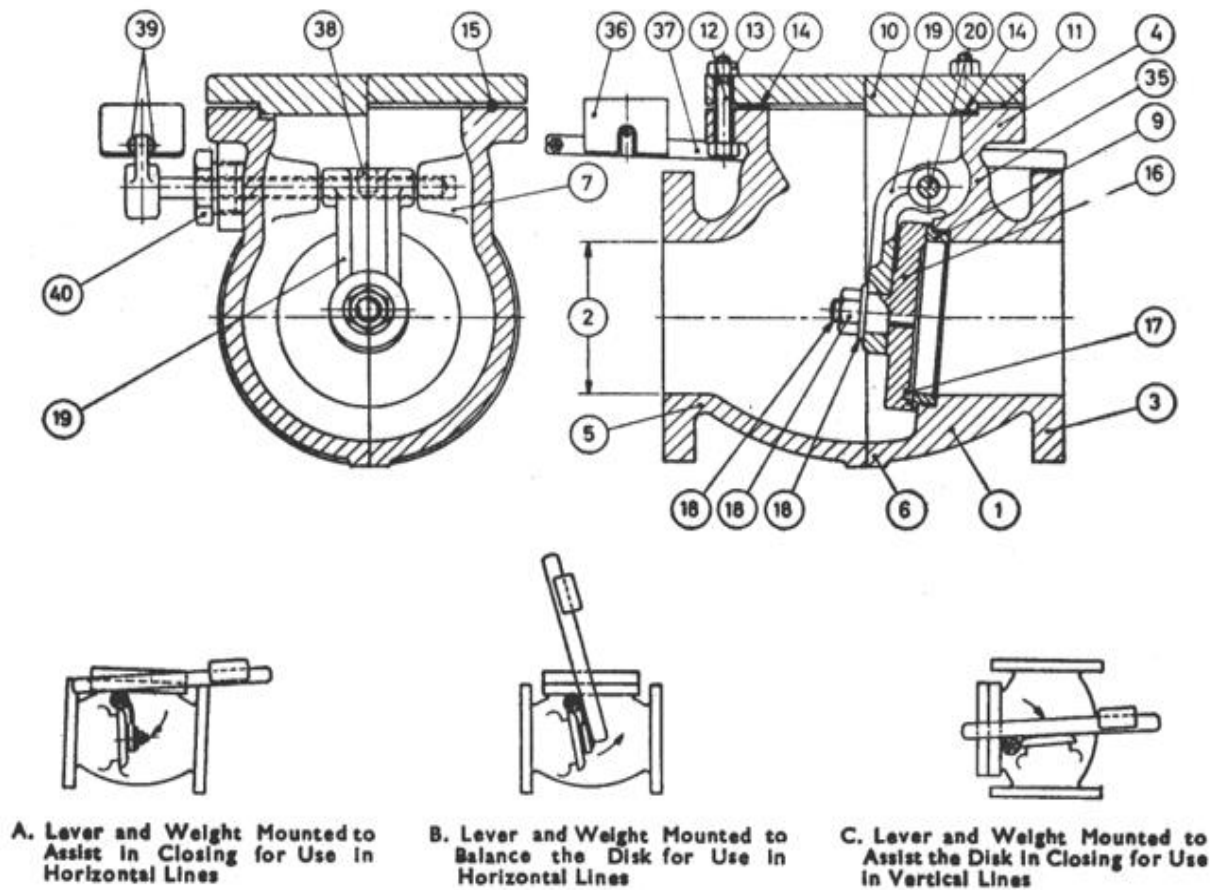


FIG. 7 SWING CHECK VALVE WITH LEVER AND WEIGHT

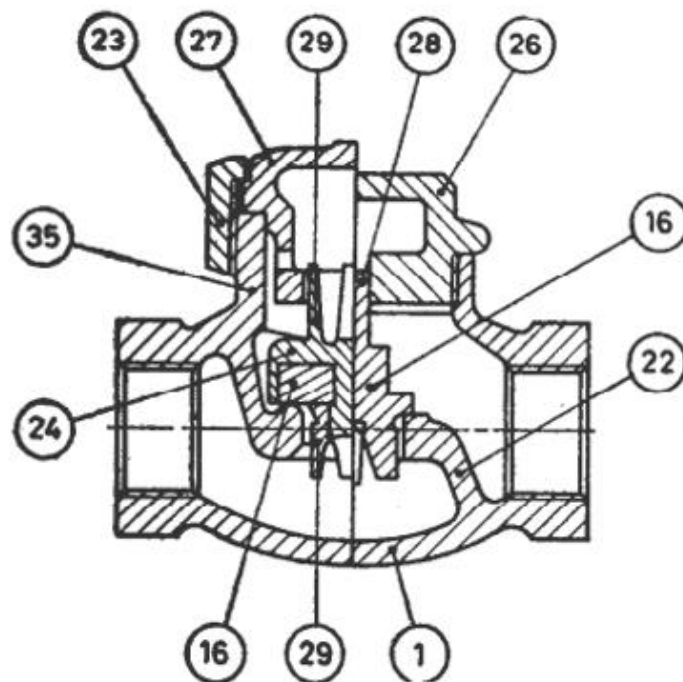


FIG. 8 HORIZONTAL PATTERN LIFT TYPE DISK CHECK VALVE

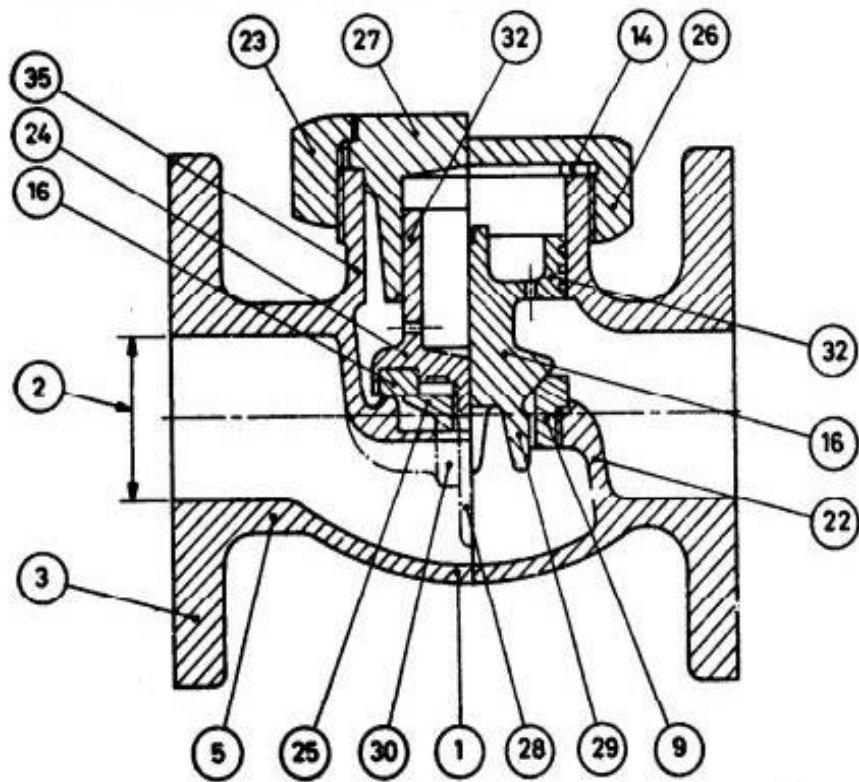


FIG. 9 HORIZONTAL PATTERN LIFT TYPE PISTON CHECK VALVE

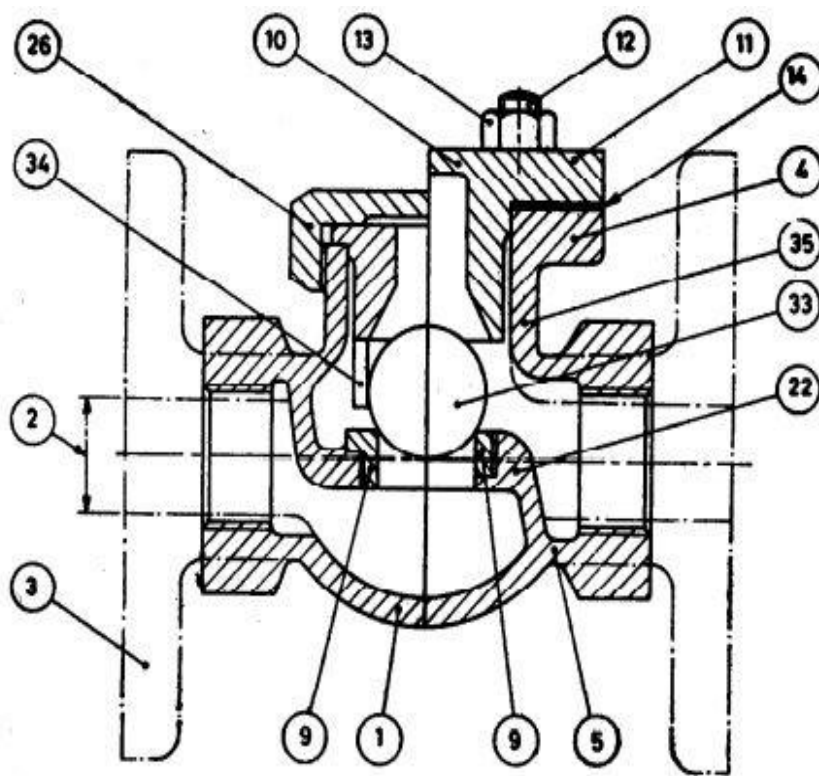


FIG. 10 HORIZONTAL PATTERN LIFT TYPE BALL CHECK VALVE

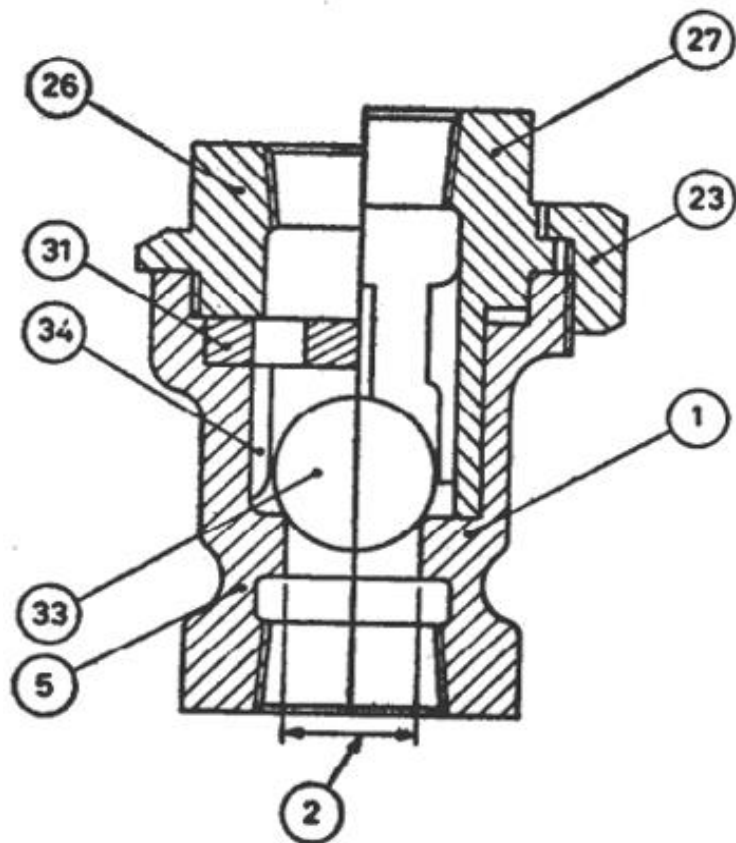


FIG. 11 VERTICAL PATTERN LIFT TYPE BALL CHECK VALVE

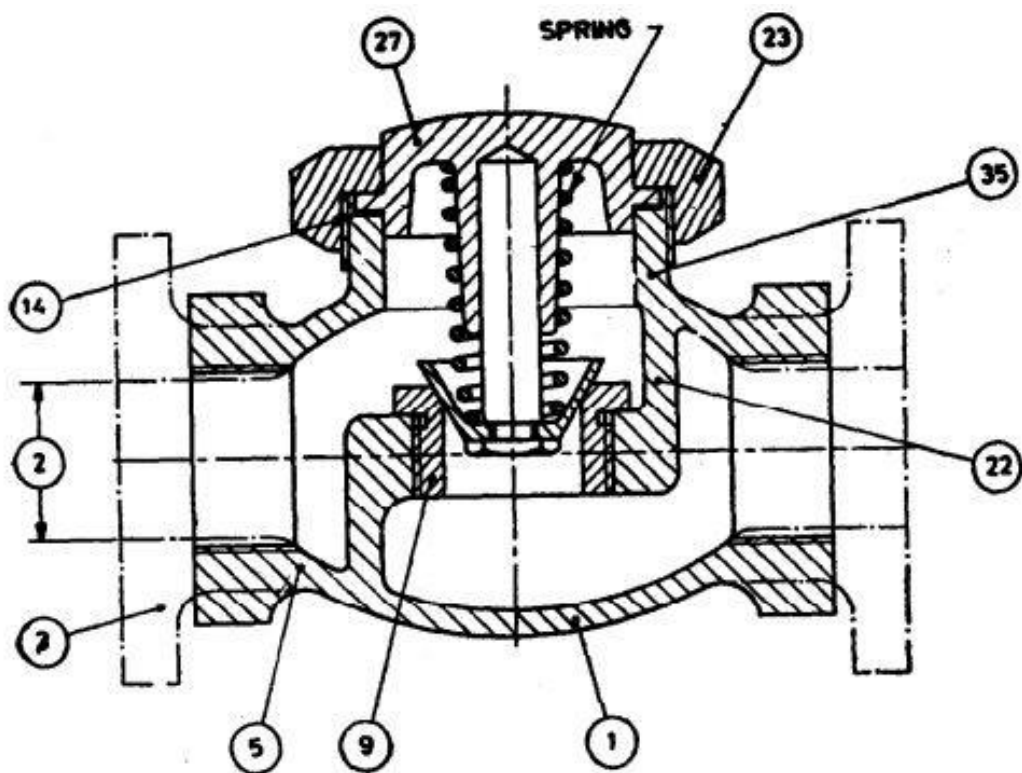


FIG. 12 SPRING LOADED CHECK VALVE

SECTION 3 GATE VALVES

<i>Sl No.</i> (1)	<i>Ref No.</i> (2)	<i>Term</i> (3)	<i>Definition</i> (4)
i)	301	<i>Gate valve</i>	A valve which provides a straight-through passage for the flow of fluid. The body ends are in line and the gate is moved between the body seats by a stem whose axis is at right angles to that of the body ends. Gate valves may be inside screw type or outside screw type.
		a) Inside screw	In which the actuating thread of the stem is contained inside the valve. This may take three forms.
		1) Inside screw, rising stem	Where the hand wheel is attached to the stem and rises with it when the valve is opened (<i>see</i> Fig. 15 and 17).
		2) Inside screw, non-rising stem	Where the hand wheel is attached to a non-rising stem, the gate rising on the stem when the valve is opened (<i>see</i> Fig. 13, 14 and 16).
		3) Inside screw, rising spindle, rising stem	Where the hand wheel is attached to a rising spindle, and the stem rises within and with the spindle when the valve is opened (<i>see</i> Fig. 19).
		b) Outside screw	In which the actuating thread of the stem is exterior to the bonnet. This may take three forms:
		1) Outside screw, stem rising with hand wheel	Where the hand wheel is attached to the stem and rises with it when the valve is opened. (Not illustrated, but the same as Fig. 12 except that the hand wheel is attached directly to the stem).
		2) Outside screw, stem rising through hand wheel	Where the hand wheel is attached to a yoke sleeve or bridge sleeve which revolves in the yoke or bridge and through which the stem rises when the valve is opened [Fig. 11, 12 and 18 (right half)].
		3) Outside screw, non-rising spindle, rising with stem	Where the hand wheel is attached to a non-rising spindle and the stem rises when the valve is opened [<i>see</i> Fig. 18 (left half)].
Types of Gate Valves			
ii)	302	Wedge gate valve	A valve in which closure is affected by the wedge action between the gate and the body seats. Wedge gate valves may take the following forms:
		a) Solid wedge	In which the gate is in one piece, either solid or cored.
		b) Split valve	In which the gate is in two pieces.
iii)	303	Sluice valve	A solid wedge gate valve used for water works purposes.
iv)	304	Double disk gate valve	A valve in which the gate consists of two disks which are forced apart by a spreading mechanism at the point of closure against both parallel body seats, thus ensuring an effective

<i>Sl No.</i> (1)	<i>Ref No.</i> (2)	<i>Term</i> (3)	<i>Definition</i> (4)
v)	305	Parallel slide valve	<p>sealing of the valve without the assistance of the fluid pressure.</p> <p>A valve in which the gate consists of one or two disks, without spreading mechanism, which slide between parallel body seats, effective closure being obtained by the pressure of the fluid forcing the downstream disk face against its mating body seat.</p>
Gate Valve Parts			
vi)	306	Trim	<p>A collective term relating to the materials of certain major internal components which are directly affixed by the fluid or by the action of the flow thereof through the valve. Trim relates only to the following components :</p> <ul style="list-style-type: none"> a) Wedge (or wedge facing rings); b) Disks (or disk facing rings); c) Body seat rings (or body seat facings); and d) Stem. <p>Where the above components are made in materials of similar composition, but not necessarily with similar mechanical properties, the valve is referred to as having a trim of that specific material, for example, '13 percent chrome trim'. Where the components are of dissimilar materials, the material of each is specified separately.</p>
vii)	307	Body	<p>The main part of the valve in which the flow of fluid is controlled.</p> <ul style="list-style-type: none"> a) Body end port <p>The inlet or outlet opening at the end of the valve body.</p> b) body end <p>That part of the body which connects the valve to the plant or installation of which the valve forms a part. It is not within the scope of this glossary to describe the type or form of the body ends.</p> c) Body/Bonnet connection <p>The connection of the body to the bonnet, generally of the bolted, screwed, or union type.</p> d) Body/Bonnet flange <p>The flange on the body of a bolted flange type of body/bonnet connection.</p> e) Body end neck <p>That part of the body between the body end and the main portion of the body.</p> f) Body/Bonnet neck <p>That part of the body between the body/bonnet connection and the main portion of the body.</p> g) Body seat <p>A machined seat with which the wedge or disk face makes contact when the valve is closed. When the body seat are formed in the body, a valve is described as having 'integral seats'. When the body seat are formed on the body seat rings, the valve is described as having 'renewable seats'.</p>

<i>Sl No.</i> (1)	<i>Ref No.</i> (2)	<i>Term</i> (3)	<i>Definition</i> (4)
		h) Body boss	A boss formed on the exterior of the body to provide sufficient metal to permit a tapped connection.
		j) Drain boss	A boss as described in 307 (h) to provide for a tapped connection for drainage purposes.
		k) Body tapping	Tapping in the body to permit an external connection.
		m) Body/Gate guides	Rails or grooves formed inside the body to guide the gate between the body seats and to prevent it turning when it is raised or lowered.
viii)	308	Body components	Those parts which are associated, but not integral with the body.
		a) Body seat ring	The part of a renewable seated valve made separate from the body and secured in it, on which the body seat is machined.
		b) Body seat facing	A deposit on the body or body seat ring of material different from them, on which the body seat is machined.
		c) Baby plug	A plug for sealing tapped hole in a body boss or drain boss [see 307 (h) and 307 (j)].
ix)	309	Bonnet	That part of the valve, attached to the body, which carries the operating mechanism.
		a) Bonnet flange	The flange on the bonnet of a bolted type of body/bonnet connection.
		b) Bonnet stuffing box flange	A flange which connects the stuffing box to the bonnet when the stuffing box is separate.
		c) Bonnet/Yoke flange	The flange which connects the yoke to the bonnet when the yoke is separate.
		d) Pillar/Bonnet connection	The bosses or flange on the bonnet to which the pillars are secured.
		e) Back seat	A machined seat, which may be on the bonnet or on a part separate from and secured in the bonnet, which makes contact with the back face [see 313 (d)] when the valve is fully open.
		f) Bonnet condensing chamber	An annular space in the bonnet around the stem below the stuffing box [see also 317 (a)].
		g) Bonnet pressure relief tapping	A tapping on the side of the bonnet into the condensing chamber.
		h) Bonnet pressure relief boss	A boss on the side of the bonnet to provide sufficient metal to permit the tapping referred to in 309 g).
x)	310	Bonnet components	Those parts which are associated but not integral with bonnet.
		a) Bonnet bolting	Comprises bolts, stud bolts, studs, set screws and nuts used for the body/bonnet connection.
		b) Bonnet gasket	A component for effecting a fluid-tight joint in a body/bonnet connection.
		c) Bonnet ring joint	A gasket in the form of a metal ring which engages with grooves in the mating flanges of the body/bonnet connection.

<i>Sl No.</i> (1)	<i>Ref No.</i> (2)	<i>Term</i> (3)	<i>Definition</i> (4)
		d) Bonnet union nut	A nut or ring securing the bonnet to the body where the body/bonnet connection is of the union type [see 307 (c)].
		e) Back seat bushing	That part, separate from and secured in the bonnet, on which the back seat is machined.
		f) Bonnet pressure relief plug	A plug fitted in the tapping referred to in 309 (g).
		g) Stem bush	That part, separate from and secured in the bonnet, which takes the thrust of the stem thrust collar.
xi)	311	Yoke	That exterior part of an outside screw valve, integral with or separate from the bonnet, in which the actuating thread of the stem engages indirectly through a yoke sleeve.
		a) Yoke sleeve	A sleeve to which the hand wheel is secured and which is located in the yoke to engage the actuating thread of the stem [see 301 (b) (2)].
		b) Yoke sleeve retaining nut	A nut to retain the yoke sleeve in the yoke.
		c) Yoke can	A cap bolted to the yoke to perform a similar function to that of the yoke sleeve retaining nut [311 (b)].
		d) Yoke bolting	Comprises bolts, stud bolts, studs, set screws, and nuts used for yoke and yoke cap assemblies and for securing the yoke to the bonnet.
xii)	312	Bridge	(An alternative arrangement to yoke). The exterior part of an outside screw valve, connected to the bonnet by pillars and in which the actuating thread engages, either directly or indirectly through a bridge bush or a bridge sleeve.
		a) Pillar	Distance pieces connecting the bridge to the bonnet.
		b) Pillar nuts	Nuts used to secure the pillars to the bridge or to the bonnet.
		c) Bridge bush	A bush secured in the bridge.
		d) Bridge bush nut	A nut which secures the bridge bush in the bridge.
		e) Bridge bush key or locking screw	A locking device which prevents rotation of the bridge bush in the bridge.
		f) Bridge sleeve	A sleeve to which the hand wheel is secured and which is located in the bridge to engage the actuating thread of the stem [see 301 (b) (2)].
		g) Bridge sleeve bush	A bush secured in the bridge to form a bearing for the bridge sleeve.
		h) Bridge sleeve bush retaining nut	A nut which retains the bridge sleeve bush in the bridge.
xiii)	313	Stem or spindle	That component on which the actuating thread is formed and by which control of the gate is affected. Where this is in two parts, the part to which the gate is attached is the stem, and the

<i>Sl No.</i> (1)	<i>Ref No.</i> (2)	<i>Term</i> (3)	<i>Definition</i> (4)
			part to which the hand wheel is attached is the spindle.
		a) Stem head	That end of the stem formed for the attachment of the gate.
		b) Stem thrust collar	A collar formed on the stem of a non-rising stem valve.
		c) Stem/Gate connection	The means of attaching the gate to the stem. This is general of the following the gate to the forms: a) Tee head; b) Button head; c) Screwed and pinned; and d) Belt eye.
		d) Back face	A machined face on the stem or spindle which makes contact with the back seat [see 309 (e)] when the valve is fully open.
		e) Stem stop	A part fitted to the stem or spindle to prevent its rotation.
		f) Stem stop nut	A nut which secures the stop to the stem or spindle.
xiv)	314	Gate	A collective term describing the component or assembly of components which close the fluid passage of a gate valve. As applied to valves included in this section, gates or gate assemblies are defined as follows.
		a) Wedge gate valves	
		1) Wedge	The component, in the form of a solid or on the wedge, attached to the stem, and on which the wedge faces are machined.
		2) Wedge faces	Machined faces which make contact with the body seats when the valve is closed. They may be machined on the wedge themselves or on the wedge facing rings.
		3) Wedge facing ring	Ring of different material from the wedges and secured to them, on which the wedge faces are machined.
		4) Wedge bush	The bush secured in the wedge and threaded internally to engage the actuating thread of the stem of an inside screw, non-rising valve.
		5) Wedge nut	The nut retained in the wedge and threaded internally to engage the actuating thread of the stem of an inside screw, non-rising stem valve.
		b) Double disk gate valves	
		1) Disk	The components, attached to the stem or the spreading mechanism, on which the disk faces are machined.
		2) Disk faces	Machined faces which make contact with the body seats when the valve is closed. They may be machined on the disk themselves or on the disk facing rings.

<i>Sl No.</i>	<i>Ref No.</i>	<i>Term</i>	<i>Definition</i>
(1)	(2)	(3)	(4)
		3) Disk facing rings	Rings, of different material from the disks and secured to them, on which the disk faces are machined.
		4) Disk wedge	The wedge-shaped component, introduced between the disks, which contacts a stop in the body and forces the disks against the body seats when the valve is closed.
		5) Upper spreader	The components which are attached to, or engage, the actuating thread of the stem, and which, in conjunction with the lower spreader and the stop in the body, constitutes the spreading mechanism which forces the disks apart against the body seats when the valve is closed.
		6) Lower spreader	The component complementary to the upper spreader.
		7) Upper spreader bushing	(Associated only with non-rising stem). A bushing secured in the upper spreader and threaded internally to engage the actuating thread of the stem.
		8) Upper spreader nut	(Associated only with non-rising stem). A bushing secured in the upper spreader and threaded internally to engage the actuating thread of the stem.
		c) Parallel slide valves	
		1) Disks	The components, carried in the belt eye, on which the disk faces are machined.
		2) Disk faces	Machined faces which make contact with the body seats when the valve is closed. They may be machined on the disks themselves or on the disk facing rings.
		3) Disk facing rings	Rings, of different materials from the disks and secured to them, on which the disk faces are machined.
		4) Belt eye	A retaining eye which may be formed on the end of the stem or attached to it and which carries the disks.
		5) Belt ring	A ring, within the belt eye, which retains the disks.
		6) Disk spring	A spring inserted between the disks to maintain contact between the disk seats and the body seats.
		7) Disk clip	A part which restricts the spreading of the disks in the open position.
xv)	315	Hand wheel	The wheel by which the valve is manually operated.
		a) Hand wheel fixing	The nut, set screw, washer, key, feather or other means used to secure the hand wheel.
xvi)	316	Cap	An adaptor fitted to the stem to take a removable key for operating the valve.
xvii)	317	Stuffing box	The part of the bonnet or a separate component attached to it, which provides an

<i>Sl No.</i> (1)	<i>Ref No.</i> (2)	<i>Term</i> (3)	<i>Definition</i> (4)
			annular space around the stem or spindle to contain the gland packing.
		a) Lantern ring	A spacing ring inserted in the stuffing box to form a pressure relief or condensing chamber [<i>see also</i> 309 (f)].
		b) Stuffing box bolting	Comprises bolts, stud bolts, studs, set screws, and nuts used to secure the stuffing box, which separates to the bonnet. This bolting may be extended to form gland bolting.
		c) Stuffing box gasket	A component for effecting a fluid-tight joint between the stuffing box and the bonnet.
xviii)	318	Gland	A part which retains and forms a means of compressing the packing. Glands are usually of the screws or bolted type, of one-piece or two-piece design.
		a) Screwed gland	The type of gland which is adjusted by, a nut which engages the stuffing box.
		b) Gland nut	The nut of a screwed gland by which pressure is transmitted to the gland,
		c) Bolted gland	The type of gland which is adjusted by bolts, studs, set screws, etc, attached to the bonnet or the stuffing box.
		d) One-piece gland	A bolted design in which the gland is integral with the gland flange.
		e) Two-Piece gland	A bolted design in which the gland is separate from the gland flange, generally having a self-aligning feature.
		f) Gland flange	The flange, of a bolted one-piece or two-piece gland, by which pressure is transmitted to the gland.
		g) Gland bush	A bush which is inserted in a gland.
		h) Gland bolting	Comprises bolts, eye-bolts, stud bolts, studs, set screws, and nuts by which pressure is applied to bolted glands.
		j) Packing nut	(Usually associated only with small relatively low-pressure valves). A nut similar to that in 318 (b), but which itself contains and compresses the packing in cases where a gland and stuffing box are not used.
		k) Gland packing	Material inserted into the stuffing box or packing nut to prevent leakage of fluid.

Key to Fig. 13 to Fig. 21 for gate Valves arranged in order of part references

<i>Sl No.</i>	<i>Part Reference</i>	<i>Name of Part</i>	<i>Reference No. of Term</i>	<i>See Fig. No.</i>
(1)	(2)	(3)	(4)	(5)
i)	1	Body	307	13 to 20
ii)	2	Body and port	307 (a)	13 to 20
iii)	3	Body end	307 (b)	13 to 20
iv)	4	Bonnet (bolted type)	309 and 307 (c)	13 to 16, 19, 20
v)	5	Body/bonnet flange	307 (d)	13 to 16, 19, 20
vi)	6	Body end neck	307 (e)	13 to 20
vii)	7	Body/bonnet neck	307 (f)	13 to 20
viii)	8	Body boss	307 (h)	13 to 16, 20
ix)	9	Drain boss	307 (j)	13 to 16, 20
x)	10	Body seat ring (shoulder seated)	308 (a)	13 to 14, 16, 20
xi)	11	Body seat ring (bottom seated)	308 (a)	13, 15, 20
xii)	12	Body plug	308 (c)	13
xiii)	13	Body flange	309 (a)	13 to 16, 19, 20
xiv)	14	Bonnet stuffing box flange	309 (b)	14, 16
xv)	15	Back seat	309 (c)	13, 14, 17, 19, 20
xvi)	16	Bonnet bolt	310 (a)	13 to 16, 20
xvii)	17	Bonnet stud	310 (a)	19
xviii)	18	Bonnet stud bolt	310 (a)	13
xix)	19	Nut for parts 16, 17 or 18	310 (a)	13 to 16, 19, 20
xx)	20	Bonnet gasket	310 (b)	13 to 16, 20
xxi)	21	Bonnet ring joint	310 (c)	13, 15
xxii)	22	Back seat bushing	310 (e)	13
xxiii)	23	Yoke	311	13, 14
xxiv)	24	Yoke sleeve	311 (a)	13, 14
xxv)	25	Yoke sleeve retaining nut	311 (b)	13
xxvi)	26	Yoke cap	311 (c)	14
xxvii)	27	Yoke bolting	311 (d)	13, 14
xxviii)	28	Stem	313	13 to 21
xxix)	29	Spindle	313	20, 21
xxx)	30	Stem thrust collar	313 (b)	15, 16, 18, 20
xxxi)	31	Stem/gate connection (tee head)	313 (c)	13, 14
xxxii)	32	Stem/gate connection (screwed and pinned)	313 (c)	14, 20
xxxiii)	33	Back face	313 (d)	13, 14, 17, 19, 20
xxxiv)	34	Wedge	314 (a) (1)	13, 16, 18, 19, 21
xxxv)	35	Wedge facing rings	314 (a) (3)	13, 16
xxxvi)	36	Wedge bush	314 (a) (4)	16
xxxvii)	37	Wedge nut	314 (a) (5)	16, 18
xxxviii)	38	Disk	314 (b) (1)	14, 15, 17, 20
xxxix)	39	Disk facing rings	314 (b) (3)	14, 15, 20
xl)	40	Upper spreader	314 (b) (5)	14, 15
xli)	41	Lower spreader	314 (b) (6)	14, 15
xlii)	42	Upper spreader bushing	314 (b) (7)	15

<i>Sl No.</i>	<i>Part Reference</i>	<i>Name of Part</i>	<i>Reference No. of Term</i>	<i>See Fig. No.</i>
(1)	(2)	(3)	(4)	(5)
xlvi)	42 A	Upper spreader nut	314 (b) (8)	15
xliv)	43	Handwheel	315	13 to 20
xlvi)	44	Handwheel nut	315 (a)	13 to 20
xlvi)	45	Handwheel washer	315 (a)	16, 20
xlvi)	46	Stuffing box	317	14, 15, 16, 18
xlvi)	47	Stuffing box studs	317 (b)	14, 15
xlvi)	48	Stuffing box stud bolts	317 (b)	16
l)	49	Stuffing box bolts	317 (b)	16
li)	50	Nuts for stuffing box bolting	317 (b)	15, 16
lii)	51	Gland	318	13 to 15 and 17 to 19
liii)	52	One-piece gland	318 (d)	13, 16, 20
liv)	53	Gland flange	318 (f)	13, 14, 15
lv)	54	Gland bush	318 (g)	14
lvi)	55	Gland bolts or studs	318 (h)	13, 20
lvii)	56	Gland eye bolts	318 (h)	13, 15
lviii)	57	Gland stud bolts	318 (h)	14
lix)	58	Nuts for gland bolting	318 (h)	13 to 16, 20
lx)	59	Gland packing	318 (k)	13, to 20
lxi)	60	Stuffing box gasket	317 (c)	14, 15, 16
lxii)	61	Bonnet (union type)	309 and 307 (c)	17, 18, 19
lxiii)	62	Bonnet (screwed type)	309 and 307 (c)	17, 18
lxiv)	63	Bonnet union nut	310 (d)	17, 18, 19
lxv)	64	Stem head	317 (a)	17, 19
lxvi)	65	Disk wedge	314 (b) (4)	17
lxvii)	66	Gland nut	318 (b)	17 to 19
lxviii)	67	Bridge	312	20
lxix)	68	Pillars	312 (a)	20
lxx)	69	Pillars nuts	312 (b)	20
lxxi)	70	Bridge bush	312 (c)	20
lxxii)	71	Bridge bush nut	312 (d)	20
lxxiii)	72	Bridge bush key	312 (e)	20
lxxiv)	73	Bridge sleeve	312 (f)	20
lxxv)	74	Pillar/bonnet connection	309 (d)	20
lxxvi)	75	Bridge sleeve bush	312 (h)	20
lxxvii)	76	Belt eye	314 (c) (4)	20
lxxviii)	77	Belt ring	314 (c) (5)	20
lxxix)	78	Disk spring	314 (c) (6)	20
lxxx)	79	Disk clip	313 (c) (7)	20
lxxxi)	80	Stem stop	313 (e)	20
lxxxii)	81	Stem stop nut	313 (f)	20
lxxxiii)	82	Stem bush	310 (g)	15
lxxxiv)	83	Bonnet condensing chamber	309 (f)	13
lxxxv)	84	Lantern ring	317 (a)	13
lxxxvi)	85	Bonnet pressure relief boss	319 (h)	13
lxxxvii)	86	Bridge sleeve bush retaining nut	312 (h)	20

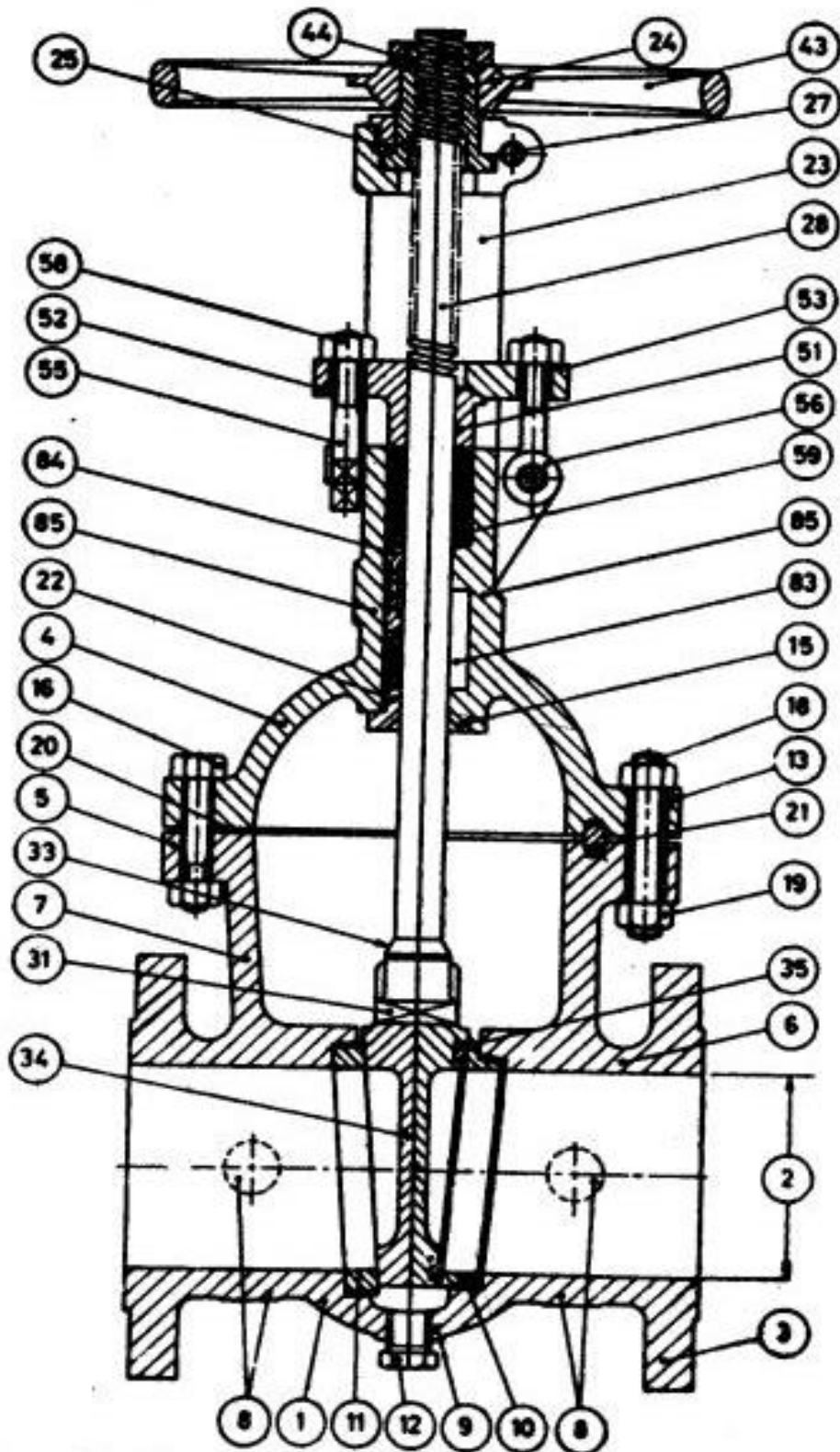


FIG. 13 OUTSIDE SCREW, SOLID WEDGE, STEM RISING THROUGH HAND-WHEEL

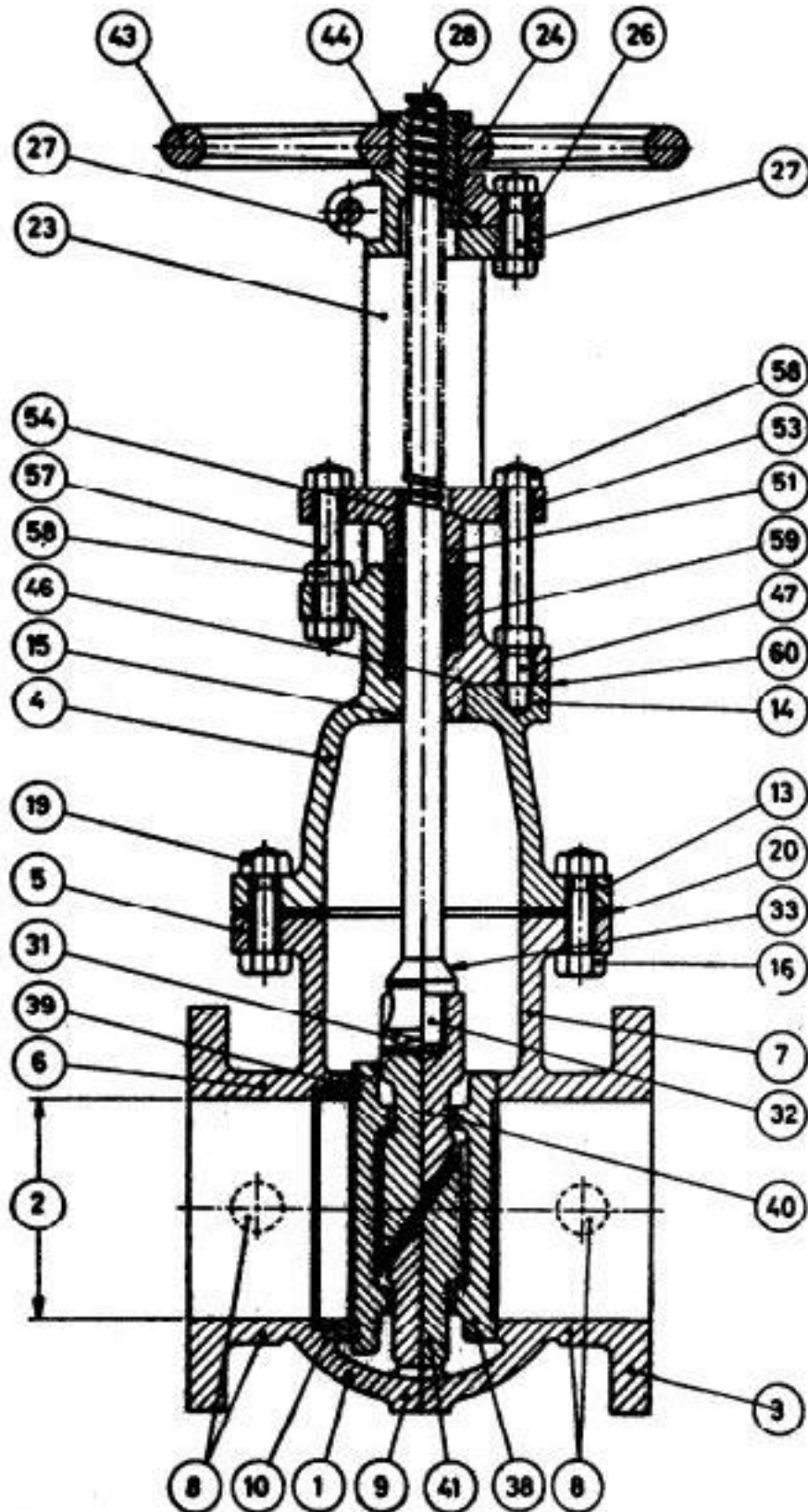


FIG. 14 OUTSIDE SCREW, DOUBLE DISK, STEM RISING THROUGH HAND-WHEEL

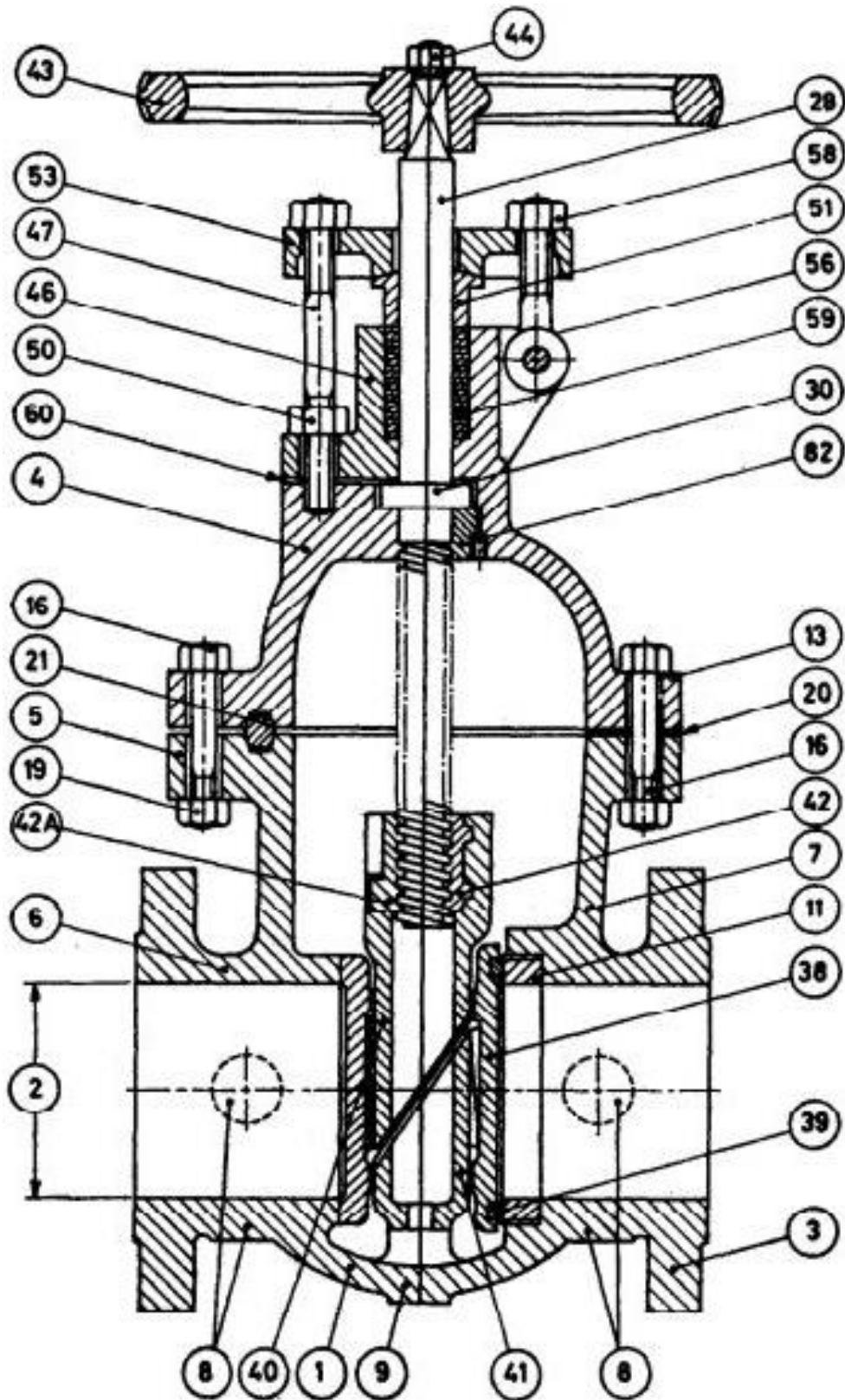


FIG. 15 INSIDE SCREW, DOUBLE DISK, NON-RISING STEM

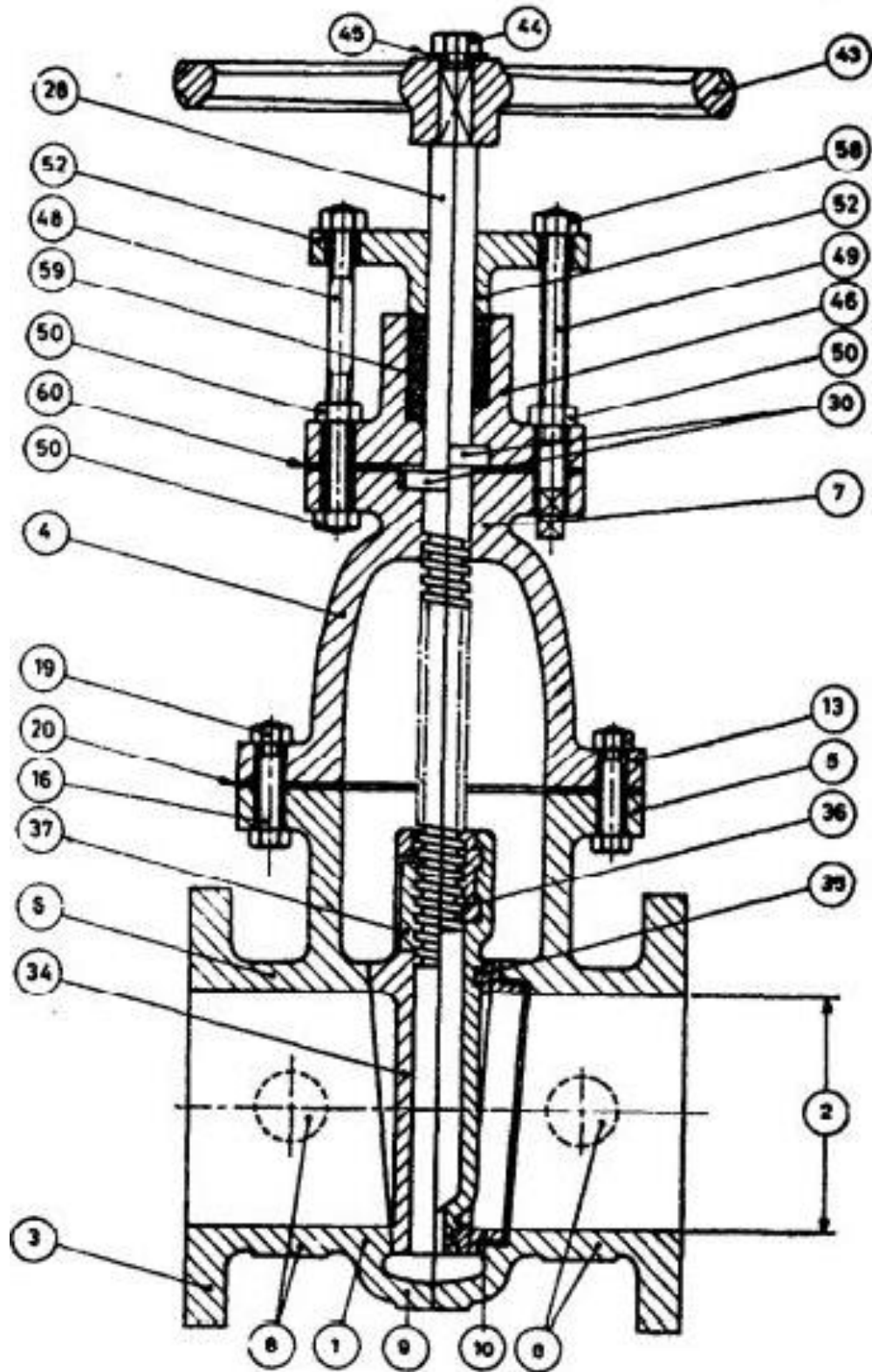


FIG. 16 INSIDE SCREW, SOLID WEDGE, NON-RISING STEM

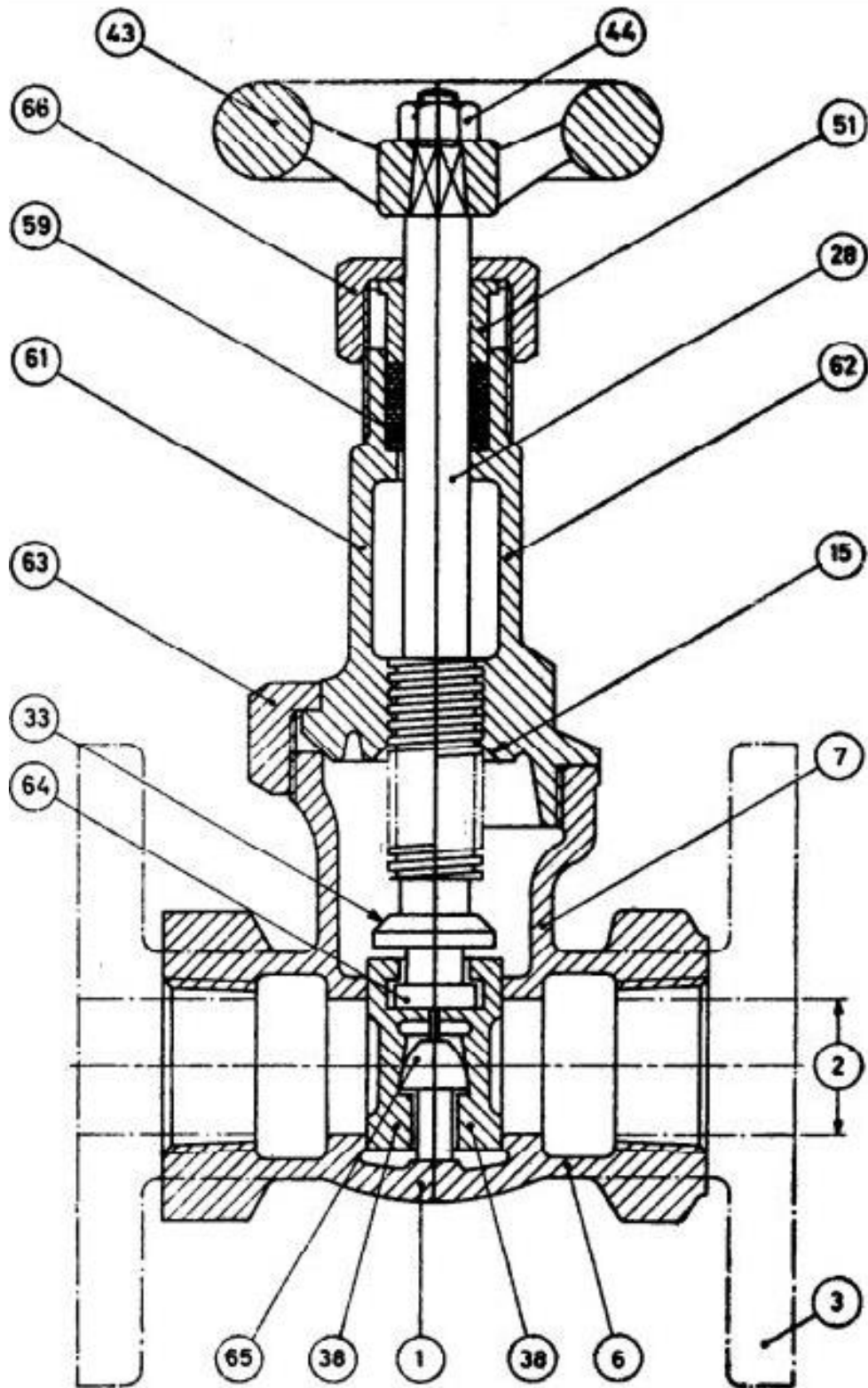


FIG. 17 INSIDE SCREW, DOUBLE DISK, RISING STEM

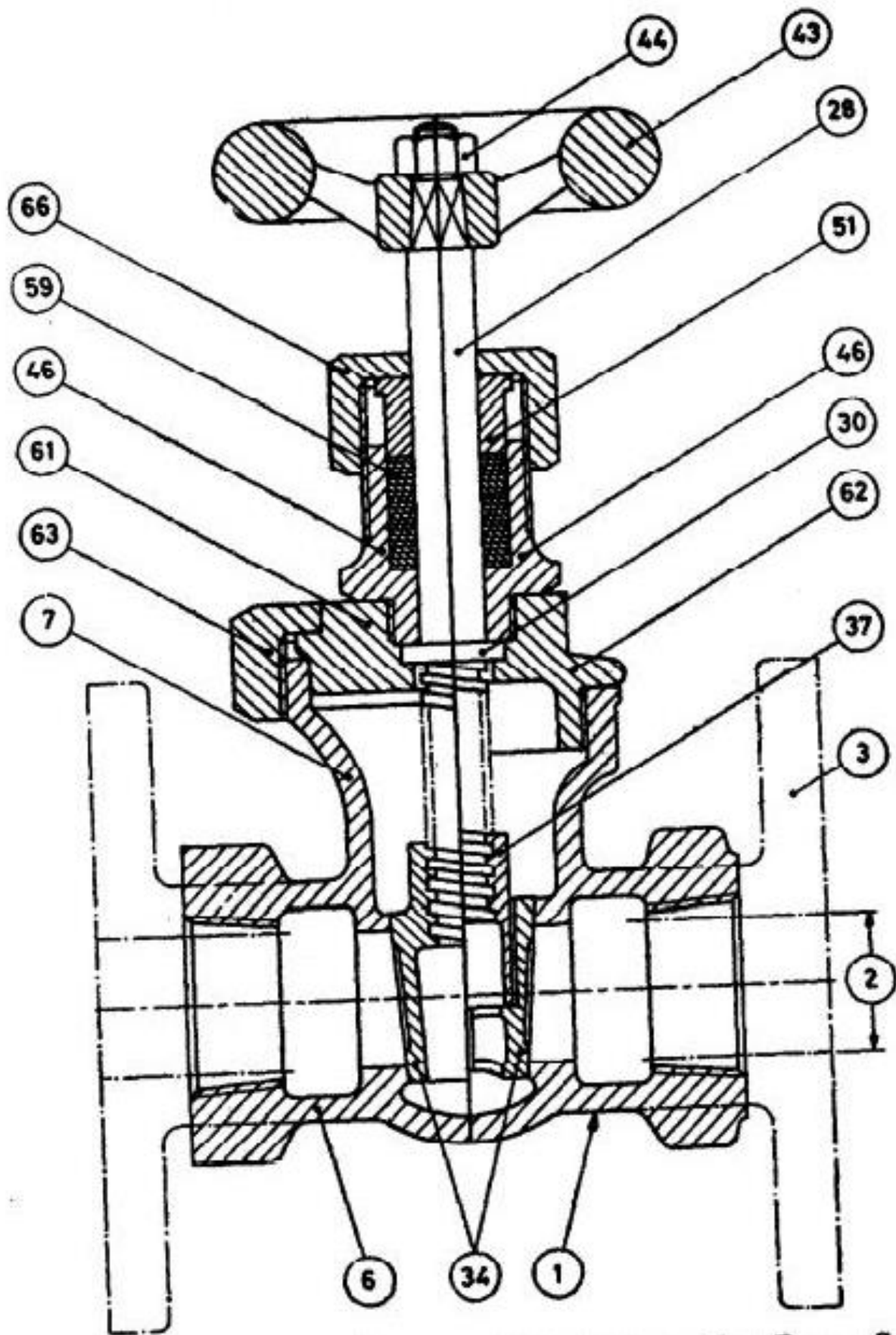


FIG. 18 INSIDE SCREW, SOLID OR SPLIT WEDGE, NON-RISING STEM

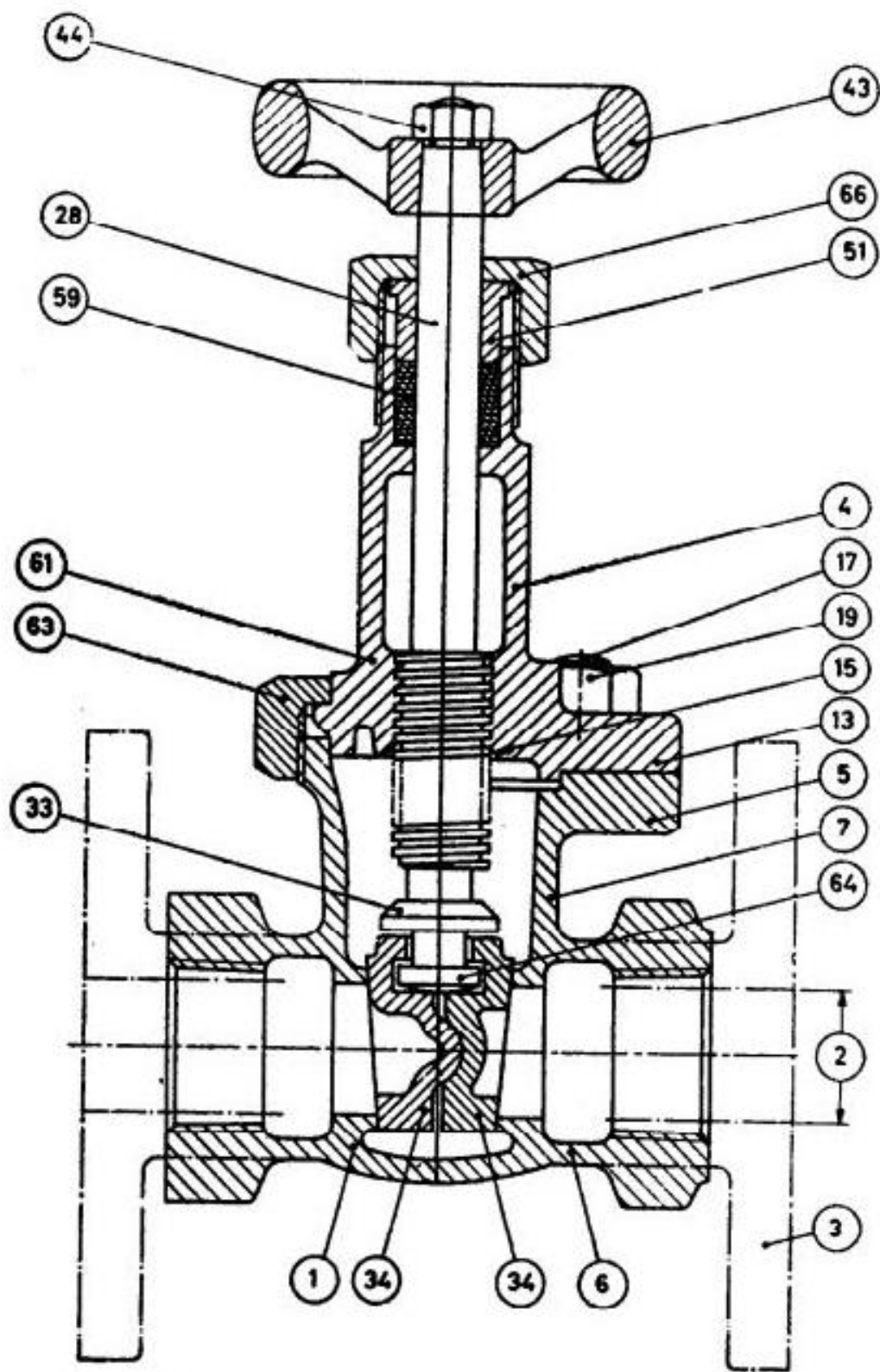


FIG. 19 INSIDE SCREW, SPLIT WEDGE, RISING STEM

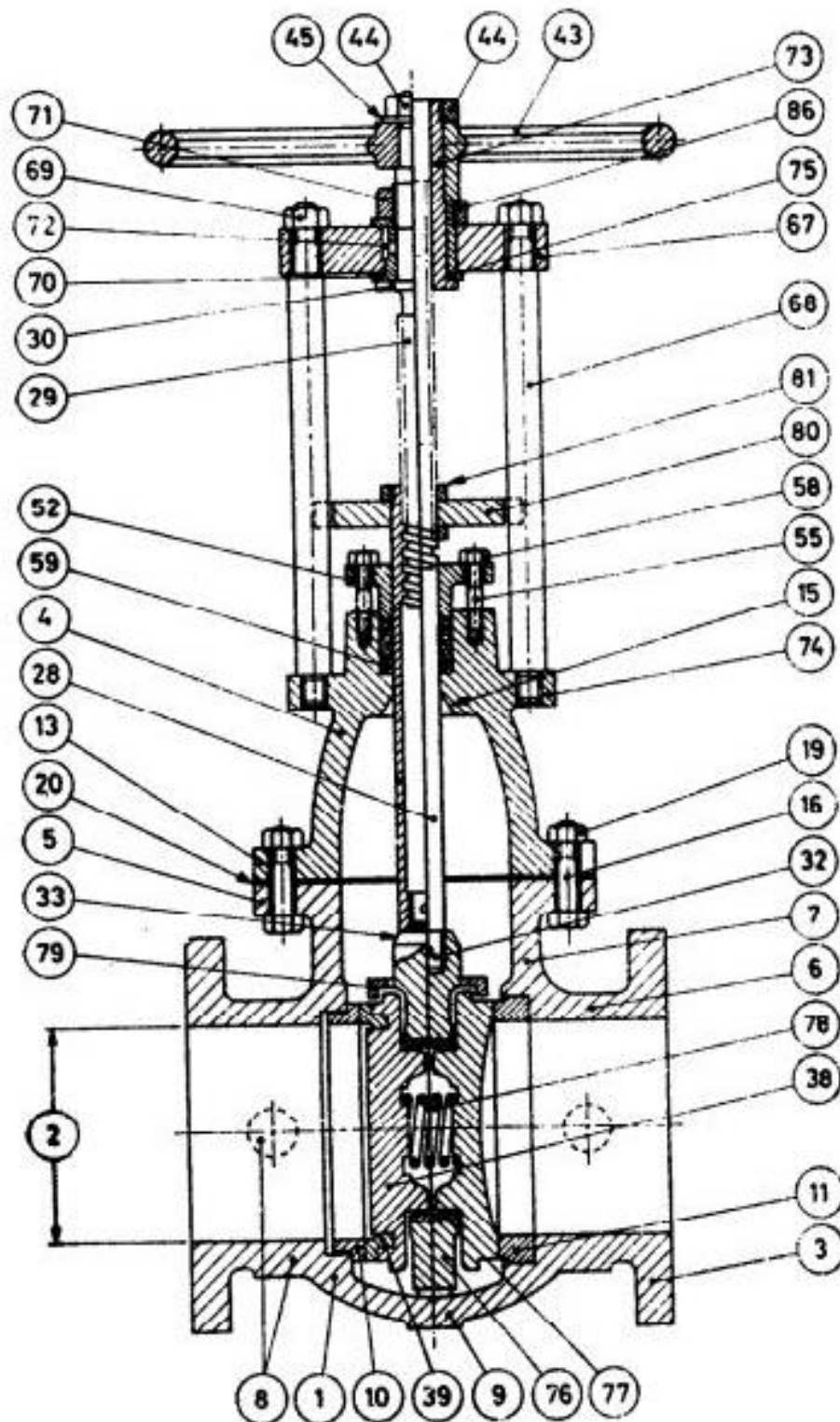


FIG. 20 PARALLEL SLIDE VALVE

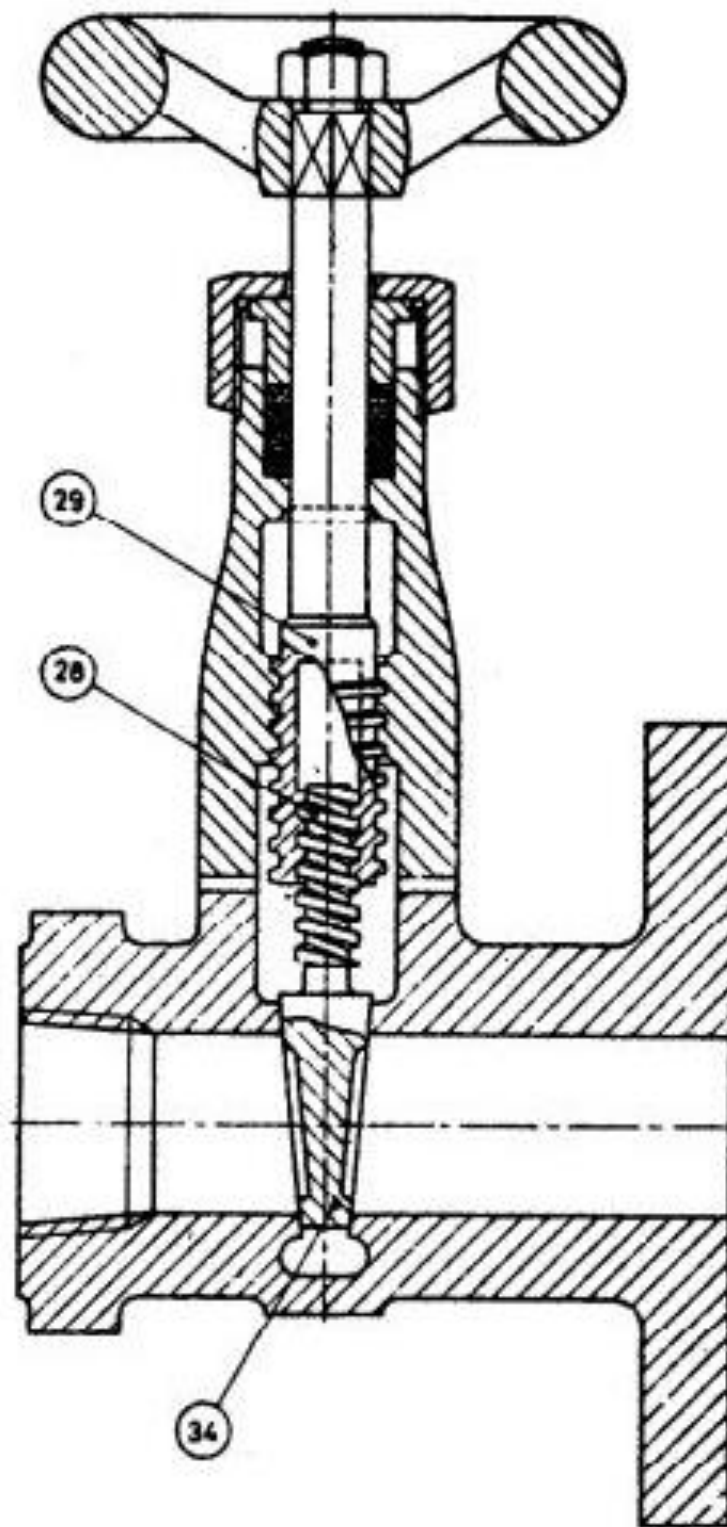


FIG. 21 INSIDE SCREW, SOLID WEDGE, RISING SPINDLE, RISING STEM

ANNEX A
(Foreword)

COMMITTEE COMPOSITION

Chemical Engineering Plants and Related Equipment Sectional Committee, MED 17

<i>Organization(s)</i>	<i>Representative(s)</i>
In Personal Capacity (199 Haridwar Road, Nirman Vihar, Dehradun)	SHRI AMAR KUMAR JAIN (<i>Chairperson</i>)
Advance Valves Global, Noida	SHRI CHANDRAKANT WADEKAR SHRI PRANAY S. GARG (<i>Alternate</i>)
Auma India Private Limited, Bengaluru	SHRI YASHWANT M. JANNU
Indian Valve and Actuator Manufacturers Association (IVAMA), Coimbatore	SHRI R. MURUGANANTHAM
Bharat Heavy Electrical Limited, New Delhi	SHRI Y. SRINIVASA RAO SHRI ABHISHEK KUMAR PANDEY (<i>Alternate</i>)
Blast Carboblocks Private Limited, Mumbai	SHRI DHAWAL SAXENA
Directorate General Factory Advice Service and Labour Institutes, Mumbai	SHRI TANOJ CHANDAN SHRI KUNAL SHARMA (<i>Alternate</i>)
Engineers India Limited, Gurugram	HASMUKH K. PARMAR SHRI MRAGANG SHEAKHAR (<i>Alternate</i>)
Hindustan Petroleum Corporation Limited, Mumbai	SH KRISHANU GHOSH SHRI N. K. RAI (<i>Alternate</i>)
Indian Oil Corporation Limited, New Delhi	SHRI KARAN AGRAWAL
Indian Rubber Manufacturers Research Association, Mumbai	DR K. RAJ KUMAR DR DEBDIPTA BASU (<i>Alternate</i>)
Kejriwal Casting Limited, Kolkata	SHRI SANDEEP KEJRIWAL
L&T Valves, Chennai	SHRI ROHIT SHARMA SHRI SURIYANARAYANAN (<i>Alternate</i>)
Lathia Rubber Manufacture Company Private Limited, Mumbai	SHRI SANJIV S. LATHIA
Plastics Machinery Manufacturers Association of India (PMMAI), New Delhi	SHRI NANDHA KUMAR T. SHRI PRADIP VANWANI (<i>Alternate</i>)
Project and Development India Limited, Noida	SHRI RAJEEV RANJAN KUMAR SHRI SANJIV KUMAR MISHRA (<i>Alternate</i>)
Rotex Manufacturers and Engineers Private Limited, Mumbai	SHRI JAY DOSHI
Tata Consulting Engineers Limited, Navi Mumbai	SHRI SHIREESH S. SWAMI SHRI SHIVNARAYAN PAREEK (<i>Alternate</i>)
BIS Directorate General	SHRI NAVINDRA GAUTAM, SCIENTIST 'E'/DIRECTOR AND HEAD (MECHANICAL ENGINEERING) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

Member Secretary
MS NEHA THAKUR
SCIENTIST 'B'/ ASSISTANT DIRECTOR
(MECHANICAL ENGINEERING), BIS

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Amendments Issued Since Publication

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